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THESIS SUMMARY

**CONTRIBUȚII PRIVIND EVALUAREA ȘI
MANAGEMENTUL STRESULUI OCUPAȚIONAL ASOCIAT
ACTIVITĂȚII PERSONALULUI DE SALVARE ÎN MEDII
TOXICE ȘI/SAU EXPLOZIVE**

**CONTRIBUTIONS ON THE ASSESSMENT AND
MANAGEMENT OF OCCUPATIONAL STRESS
ASSOCIATED WITH THE ACTIVITY OF RESCUE
PERSONNEL IN TOXIC AND / OR EXPLOSIVE
ENVIRONMENTS**

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1. INTRODUCTION ON TOPIC IMPORTANCE AND NECESSITY

THESIS OBJECTIVES AND STRUCTURE

Research topic. Topicality, necessity, importance

In Europe, AESSM points out that psychosocial risks and occupational stress are some of the most challenging issues in OSH, generating a significant negative impact on people's health, organizations and the functioning of national economies. Thus, data of surveys carried out by the mentioned agency [208] show that about half of the European employees say that occupational stress is a common situation in their workplaces and that it is the cause of the most lost work days, out of their total. Recognizing and accepting the presence of these risks represents the first steps towards solving the problem. Compared to more "traditional" occupational risks, psychosocial risks do have a more complex nature that may seem more difficult to manage, but in fact they can be managed in the same way as any other OSH risk.

The current state of knowledge in the field at national and international level

In Romania, interventions in the field of organizational psychology are regulated by Law 213/2004 on practicing the profession of psychologist as well as by a series of norms, decisions and quality standards issued by the Romanian College of Psychologists. Beyond this legislative framework, which indeed provides guidelines on how to carry out the activity, psychologists are free to choose between different methods and techniques with different degrees of standardization.

Although the psychological training of different professional categories has been the object of Romanian psychologists' concerns, the national specialized literature is still quite poor when it comes to theoretical materials, studies and research on psychological training, in an organizational context. In contrast, internationally, the literature abounds in theoretical and practical works on psychological training of emergency and rescue personnel in emergency situations. Abroad, the trust placed in psychological interventions of preventive nature has a greater weight, both large and small companies understanding that they play a key role in maintaining a high level of safety and health at work.

In our country, certain professional categories (e.g., military personnel, athletes, firefighters) benefit in their training of psychological training programs, which have the role of supporting them in better coping with difficult situations to which they will be exposed. Regarding the training / retraining activity of intervention and rescue personnel in toxic / flammable / explosive environments, at present there are no psychological training programs included in the training topic.

There are organizations, growing in number even when we refer to our country, which either conceive or implement for a fee, programs designed to support employees in preventing the onset of general and occupational stress or, if it has already settled, to assist them in managing it in the most adaptive way possible. The golden rule, that it is better to prevent than to treat, also applies to psychosocial risk management approaches.

Thus, the most effective programs are those of a prophylactic nature, materializing in elaborate recruitment and selection processes (selection of those persons who, following the evaluations, prove to be potentially able to manage the level of stress assumed by the respective job) and in training and development programs, through which employees learn

or develop skills and knowledge that facilitate the adaptive management of occupational and general stress.

In 2010, Mihaela Stoica, associate professor at Dimitrie Cantemir University in Târgu Mureș, stated: “With rare exceptions, in Romania stress management programs are not very successful, the reasons being mainly related to mentality. Romanian employers are still followers of the "X" theory of management, which considers that people by their nature are lazy and must be forced to work, carefully controlled and promptly sanctioned. On the other hand, in some multinational companies there is another phenomenon: it is normal to work overtime, to be permanently busy, always in action, in a hurry, always in a time crisis. The problem of occupational stress in Romania is still an open problem, waiting to be solved.”. The situation has not improved significantly in the last decade.

Relevance of the theme for the development of scientific knowledge

Special conditions generated by emergencies are likely to produce mental and emotional stress. For some intervention and rescue personnel, this stress is accompanied by the activation of the most important internal individual resources, while for other people they can lead to maladaptive situations as well as to manifestation of stress symptoms. From this perspective, stress is seen as a consequence of the marked disproportion between environmental requirements and the individual's response possibilities [180]. If the external stimuli exceed, in terms of intensity and duration, the individual thresholds of a person, it results in a disorganization of cognitive processes, which in turn leads to a behavioural disorganization. This disorganization can have several degrees of intensity, from alteration of processing, to slowing down and to total blocking, which is equivalent in the behavioural spectrum to freezing of any form of response.

The effects that stress can have on an individual can be diverse, affecting the quality of personal life and quality of professional life, physical and mental health, interpersonal relationships and the universe of inner life.

The traumatic nature of an emotionally disruptive event is always the result of a subjective interpretation of this event by the individual and is not dependent only on objective indications of the event. The “normality” limit, at which psychological processes and products operate has, of course, an individual and variable character, defining the individual's psychological resistance to demands of external and internal environment, respectively, the limit to which the individual can produce functional and adaptive responses [180]. The level that an individual reaches in terms of mental resistance development can follow two trajectories, respectively: it can be the result of a spontaneous, natural development, or it can result from actions specifically targeted in this regard, respectively participation in a series of programs, courses, etc. Thus, the main objective of participating in a psychological development program is outlined, namely increasing the threshold beyond which non-functional and maladaptive responses occur.

Specific psychological knowledge and strategies, procedures such as stress inoculation, emotion management and stress reduction management, cognitive restructuring, relaxation techniques, problem solving, optimization of interpersonal relationships, can be learned and used by intervention and rescue staff in toxic / flammable / explosive environments for effective management of psychosocial risks. A better understanding of one's own psychological response and that of others in emergencies, helps individuals feel more confident, more in control, and better prepared, both psychologically and for effective emergency planning. Psychological training can help individuals think clearly and rationally, which reduces the risk of serious injury and loss of life, thus contributing to increasing the level of health and safety at work.

The doctoral thesis entitled "Contributions on the assessment and management of occupational stress associated with the activity of rescue personnel in toxic and / or explosive environments" proposes an interdisciplinary topic on occupational health and safety, its relevance being determined by the importance given to occupational safety and health and to protecting life.

Objectives of the doctoral thesis

The main objective of the research project is to increase occupational safety in intervention and rescue activities in toxic / flammable / explosive environments, through the implementation of preventive strategies for managing occupational stress associated with the intended activity. "Being prepared" is simply a desirable approach in many life situations and circumstances. This approach also acquires deeper meaning in particularly difficult situations, specifically relating to what an individual should do to be "prepared" for emergencies that can be particularly dangerous, extremely stressful or even life threatening.

In order to achieve the general objective, the following specific objectives (S.O.) have been set:

S.O. 1. Underlay of theoretical and methodological frameworks of occupational stress research, to ensure the development of tools based on scientifically validated theories, which have passed the test of rigorous clinical trials, to optimize the maintenance of psychosocial risks within an acceptable interval in an organization's operations, from the perspective of safety and health of workers and to ensure increased preventive potential;

S.O. 2. Detailed analysis of psychosocial risks in organizational context;

S.O. 3. Carrying out an analysis of literature on psychosocial risk assessment techniques, in order to generate a quasi-exhaustive review of the most relevant and current sources in the literature on their characteristics, benefits and limitations, applicable to an effective OSH management;

S.O. 4. Carrying out an analysis of work and psychosocial risks for intervention and rescue activity in toxic / flammable / explosive environments, in order to serve as a reference point in developing the instrument suggested within the main objective. Work analysis is considered to be a component of great importance in designing the personnel management system, leading to circumscription of a major validation aspect of any professional selection system: identification of professional performance criteria.

S.O. 5. Analysis of the national and international context, as well as the current state of managerial strategies to minimize psychosocial risks, respectively the occupational stress associated with various categories of activities and conducting a documentary synthesis on the available means of prevention and protection;

S.O. 6. Application of a research methodology, tools / questionnaires for conducting a study on coping strategies, respectively highlighting how intervention personnel cope with stressful situations, within an organization that conducts training activities in the field of intervention and rescue in toxic / explosive / flammable environments.

S.O. 7. Highlighting the role of psychological training and elaboration of a methodology, implementable at organizational level, in order to manage occupational stress associated with the activity of intervention and rescue personnel in toxic and / or explosive environments. The methodology, called "Psychological training program", aims at specific activities to increase individual and group efficiency in terms of controlling stressors and their effects, namely managing dysfunctional negative emotions, learning a healthy thinking style, stress management, stimulating creativity, addressing negative life situations or events that may affect individual and team performance (e.g., death, physical pain, injury, etc.), decision management, etc.

2. SYNTHESIS OF THE DOCTORAL THESIS

The doctoral thesis comprises 7 chapters and is extended to 187 pages allocated to the scientific research, contains a number of 62 figures, 42 tables and 229 bibliographic references.

The doctoral thesis systematically summarizes the results of the bibliographic documentation process, the elements of conception and staged development of theoretical research and - especially - applications dedicated to solving the approached topic, as well as the results of experimental research undertaken during the doctoral research internship.

Chapter 1, entitled "**Synthesis of explanatory theories and models of stress**", is dedicated to presenting the evolution of causal models and theories of stress, in order to further understand the triggering mechanisms, the development of scenarios and finally the defence mechanisms applicable in economic organizations, considered as complex socio-technical systems. The importance of this first chapter lies in the fact that understanding how stress occurs is essential in trying to minimize unwanted events, because knowledge of a phenomenon's intimate mechanism of occurrence and development is one of the necessary conditions in understanding and mastering it.

Chapter 2, entitled "**Analysis of psychosocial risks to health and safety at work**", makes an elaborate presentation of the characteristics of psychosocial risks in the context of work activities. The main sources of psychosocial risk within the organizational framework and the consequences that stress can have on the physical, mental and behavioural components were presented. The analysis carried out in this chapter generated a set of ordered knowledge that supported the development (in Chapter 6) of a model tool for prevention and management of occupational stress and general stress.

Thus, this chapter summarizes the main results, information and preliminary conclusions drawn from the analysis of the literature on psychosocial risks at work.

Chapter 3, entitled "**Investigating psychosocial risk measurement techniques and instruments**", is dedicated to a brief description of some of the main methods used in the world for analysis and assessment of psychosocial risks. The aim is not to make a comprehensive and detailed presentation, but to illustrate the basic categories and their main characteristics. The psychosocial risk assessment process and a number of 10 psychosocial risk assessment techniques were briefly presented. All of these issues covered in Chapter 2 provided information on the categories of risk assessment methods, the types of input data required and the types of results provided, the ways in which risk assessment steps can be combined, and the ways in which risk assessment techniques can be combined.

Chapter 4, entitled "**Analysis of work and psychosocial risks for rescue in toxic / explosive / flammable environments**", has a complex structure, giving a character of originality to the doctoral research. Within this chapter, a methodology for work analysis was applied for the activity considered by research. The first step in analysing a process is to standardize the understanding of the process, so that we developed an overview of intervention and rescue activity, the characteristics and the regulatory framework governing its development, highlighting both the demands placed on rescuers and the risks to which they are exposed to during intervention and rescue actions. Synthesis of results obtained after implementation of the work analysis methodology took the form of a psychological profile of intervention and rescue personnel in toxic / flammable / explosive environments, which operationalizes a series of psychological requirements to be met by the occupant. These, along with the professional requirements, will be the basis of the organizational management process of psychosocial risks (e.g., the process of professional selection, personal

development programs for employees, etc.). Typically, until the exact demands on an employee at work are identified, both in terms of tasks and expected behaviour, designing a training / professional development program or structuring a training system, staff evaluation and management are very difficult, if not impossible. Results of the analysis performed in this chapter were an important step in substantiating the general context of the activity of interest, in order to develop a tool adapted to the specific needs of the professional category, designed to prevent and manage occupational stress and general stress.

For the present research, we chose to use the FJAS work analysis system because it represents one of the most elaborate systems in the field. This method provides a direct link between job-specific tasks and the qualities that individuals must have in order to perform them correctly. FJAS was used to describe the job and workload of intervention and rescue personnel in toxic / explosive / flammable environments in terms of skills required to perform the activity.

Chapter 5, entitled "**Research on occupational stress management associated with the activity of rescue personnel in toxic and / or explosive environments**", was structured in two sections. The first sections reviewed the most relevant scientifically validated theories, regarding the types of intervention in stress management, coping strategies employed by individuals in trying to manage emotionally charged situations, the most relevant personality traits involved in the coping process as well as prototypical trajectories in normal functioning, following a potential trauma.

The second section of the chapter aimed to highlight the stress management strategies most often used by intervention and rescue personnel, within an organization whose activity includes the organization of training and retraining courses for intervention and rescue personnel in toxic / flammable / explosive environments. The research involved using instruments to measure the cognitive components of emotion regulation, namely a tool that measures the cognitive coping strategies of adults and a tool that measures the behavioural component of coping, taking into account the facets and social implications of the strategy by which an individual tries to manage potentially stressful situations. Thus, in order to highlight the coping strategies, both cognitive and behavioural, most often used by rescuers trained within INCD INSEMEX Petroșani, two tools were used, namely the Strategic Approaching of Coping Scale (SACS) and Cognitive Emotion Regulation Questionnaire (CERQ).

Chapter 6, entitled "**Contributions and proposals for reducing the risk of exposure to stress (psychological training program for rescuers)**" is an original, innovative proposal, a direct consequence of the preliminary findings highlighted by the analysis of literature and interpretation of empirical research results, performed in previous chapters. In view of all the above, the psychological training program for intervention and rescue personnel in toxic / flammable / explosive environments has been developed with the aim of assisting rescue personnel in preparing for situations requiring intervention, to help alleviate the impact of stress. The program consists of five modules, comprising theoretical and practical activities.

Theoretical activities include information on the psychological risks of interventions, the influence of environmental elements on the human psyche, the qualities and mental states conducive to effective development of interventions, symptomatic tables specific to the most common mental dysfunctions, methods, procedures and stress management techniques. Practical activities refer to psychological training, respectively a strategy of systematic practice of behaviour, which amplifies the adaptive value of stress reactions. It starts from natural adaptation potentialities and reaches their empowerment by learning ways to mobilize and invest correctly in response resources.

In **Chapter 7**, entitled '**Final conclusions and personal contributions. The limits of the study and directions of further development of the research**', the main relevant conclusions are summarized and the original contributions of the author to knowledge in the field of researched topic are highlighted. Inherent limitations of the research study are formulated, as well as prospects for further research and potential directions for future development of this doctoral thesis.

3. CONTRIBUTIONS

The present doctoral thesis brings a number of contributions to the development of knowledge in the field of OSH, specifically in the management of psychosocial risks, presenting programs and solutions with a high degree of originality to support employers, workers and all those interested in minimizing the risks associated with occupational stress. Personal contributions, which include both theoretical and practical aspects, are summarized below.

A. From the perspective of bibliographic research and analysis of the current state of the topic:

- Documentary synthesis regarding the conceptual models of stress, offering a coherent image on the intimate mechanism of occurrence and development of the investigated phenomenon, in order to thus create the necessary premises for understanding and mastering it.
- Carrying out a analysis of the most common techniques for assessing psychosocial risks in an organizational context, emphasizing that the choice of instrument is a step of great importance.
- Analysis of specialized literature regarding the psychosocial risks at work and their management, generating a solid theoretical basis for the development of the solution proposed within the research objectives, respectively the elaboration of a tool for occupational stress management. Thus, the latest studies and research on occupational stress models, types of stress management interventions and cognitive-behavioural coping strategies were reviewed.
- The bibliographic references reflect a constant concern for the latest and most relevant research in the field of OSH and with a focus on the specific field of psychosocial risks.

B. From the perspective of establishing research objectives:

- Clearly defining the general objective of the doctoral thesis, in direct correlation with the issue brought into discussion, by establishing the title of the thesis.
- Elaboration of specific objectives, in accordance with the general objective of the doctoral thesis and identification of directions to be followed in investigations undertaken, in order to properly carry out research procedures;
- Highlighting theoretical aspects and practical tools that underlie the coherent, unitary and interdependent approach to issues specific to psychosocial risks in an organizational context.
- Identifying the possibility of elaborating a methodology implementable at organizational level, in order to manage occupational stress associated with

the activity of the intervention and rescue personnel in toxic and / or explosive environments.

C. From the point of view of theoretical research:

- Achieving a synthesis of organizational stress models and highlighting the historical context of the evolution of relevant theories and models.
- Synthesizing the results of fundamental and applied research, as well as the experience of nationally and internationally recognized specialists in the field of industrial safety, on the general objectives and main stages of psychosocial risk analysis and assessment, necessary input data, types of results obtained.
- Highlighting the conceptual and methodological framework for approaching research on psychosocial risks. Within this extensive analysis, benchmarks were established regarding elements of the general theoretical framework for approaching work stress, classification of organizational stressors, consequences they may have on different dimensions of individual life, explanatory models of occupational stress emergence, structuring the complex process of assessing psychosocial risks for occupational safety and health.
- Elaboration of a classification and description of interventions types regarding the management of occupational stress and highlighting the extremely important role that primary intervention strategies play in preventing and confuting undesirable effects of stress on personal and professional aspects of individual life. In this context, psychological interventions' mechanisms of action were established.
- Proposing a methodology to investigate the main coping strategies used by intervention and rescue personnel in toxic / flammable / explosive environments, preceded by an elaborate analysis of the concept proposed for measurement. Thus, a presentation of the cognitivist perspective on the notion of coping was made, the main personality traits were analysed in correlation with the effects that their degree of development has on the preferred style of stress management. Also, prototypical trajectories in normal functioning of the individuals, following exposure to trauma, were analysed.

D. In terms of practical and applied contributions:

- Carrying out a work analysis for the position “intervention and rescue personnel in toxic / flammable / explosive environments”, respectively selecting a number of 35 skills based on the detailed description of the mentioned activity, selecting a number of 25 evaluators and applying FJAS scales in order to assess the extent to which the selected skills are necessary for carrying out specific activities of intervention and rescue activities in toxic / flammable / explosive environments.
- Highlighting the level of development of different personality traits involved in coping processes by applying a series of psychological tests to assess the personality of a number of 98 people, participating in training / retraining courses for intervention personnel in toxic / flammable / explosive environments, that took place within INCD INSEMEX Petroșani.

- Making a detailed description of the intervention and rescue activity in toxic / flammable / explosive environments, as a first step in carrying out the work analysis. Activity description includes the motivation within rescue activities, the physical requirements for rescuers, risks to which they are exposed in the activity, the normative framework that regulates the activity, etc.
- Development of a psychological profile of intervention and rescue personnel in toxic / flammable / explosive environments, which summarizes all results obtained after performing the work analysis, which records the individual attributes or particularities necessary for the job occupant, respectively knowledge, skills, abilities and other personal or personality indicators directly or indirectly involved in the profession.
- Selection and implementation of tools to identify cognitive and behavioural coping strategies used by individuals, in order to establish the extent to which respondents use adaptive and maladaptive stress management strategies. This approach aims to highlight as realistically as possible the way in which intervention and rescue personnel deal with stressful situations.
- Establishing a battery of psychological tests aimed at detailed assessment of personality (respectively of traits with a role in sanogenesis: self-efficacy, self-esteem, robustness, but also anxiety, neurosis, depression), evaluation of personal attitudes and beliefs and evaluation of adaptation to stress. Psychological evaluation objectives are represented by knowledge of the personality structure, of cognitive functioning and of other psychological-aptitude aspects as well as by early identification and reduction of the incidence of cases of psychological dysfunction. For this purpose, a series of psychological tools were used: The ABCD-M personality test, the SEC Clinical Assessment System (Self-efficacy Scale, the Self-Esteem Scale and the Attitudes and Beliefs Scale), the Scale of strategic approach to coping, DRS-15 Scale for measuring robustness.
- Elaboration and / or adaptation of specific tools, implementable within the methodology proposed in chapter 6 of the doctoral thesis, representing questionnaires, checklists, procedures, case studies, lists with criteria, “psychological pills”, lists with recommendations, fact sheets thing etc.

E. In terms of dissemination of results

During the development of doctoral activities and the initial documentation efforts undertaken, as an author / co-author I published, a number of 16 scientific articles and research papers divided into the following categories:

- 10 articles published in indexed journals Web of Science - WoS (ISI);
- 5 articles published in BDI indexed specialized journals;
- 1 book chapter published in national publishing houses.

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