



“Gheorghe Asachi” Technical University of Iasi, Romania



PSYCHOLOGICAL TRAINING PROGRAM FOR INTERVENTION AND RESCUE PERSONNEL

Izabella Kovacs*, George Artur Găman, Daniel Pupăzan, Cosmin Ilie, Andrei Gireadă

National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX Petroșani,
32-34 G-ral Vasile Milea Street, 332047 Petroșani, Hunedoara County, Romania

Abstract

The manner in which individuals deal with stressful situations depends on several variables. Personality characteristics, event circumstances, preparedness of individual, personal appraisal of events, pre-existing organizational and personal stressors are all key factors. Psychological resistance to stress can be the result of spontaneous evolution, or can be developed through special training, through programs that increase the threshold beyond which functional alterations may occur, resulting from dealing with stressful events. Psychological training can be improved by acquiring specific psychological knowledge and strategies and by indirect experiences with emergency situations and scenarios. Procedures such as stress inoculation, emotional management and stress reduction management, cognitive restructuring, relaxation techniques, problem solving and optimization of interpersonal relationships can be learned and used by individuals. Along with training in conditions as close as possible to future reality of interventions, psychological training can contribute both to the success of intervention and rescue operations and to appropriate management of emotions generated by emergency response.

The current paper details issues regarding the implementation of a psychological training program for intervention and rescue personnel in toxic/ flammable/ explosive environments, in order to test it and to identify adjustments needed to be made for optimizing it, as well as a series of theoretical fundamentals for each of the five modules of the program.

Key words: coping, psychological training, rescuer, stress

Received: September, 2018; *Revised final:* January, 2019; *Accepted:* April, 2019; *Published in final edited form:* April, 2019

1. Introduction

Stress mitigation strategies imply fairly high costs but have much greater benefits, measurable both financially and by raising employees' morale. Some organizations have programs designed to help physically and mentally healthy workers to prevent stress-related problems and help them cope with work-related stress. These programs are both prophylactic and therapeutic. In order to be effective, the focus must move from treatment to prophylaxis (Stoica and Buicu, 2010). Primary prevention involves cognitive and organizational preparation for a traumatic event, promoting mental health and risk mitigation (Guterman, 2005). Prevention represents the best

solution, and may be implemented in the form of recruitment and selection process by choosing individuals capable of coping with levels of stress related to certain activities, training and development programs to acquire knowledge and abilities that allow better adaptation to job requirements and coping with occupational stress, organizational communication process, designed to eliminate any ambiguity (Stoica and Buicu, 2010).

Psychological training of various professional categories has been, over time, object of concerns of Romanian psychologists (Bogathy, 2004; Băban, 1998; Ticu, 2004). However, Romanian literature is still quite poor when it comes to theoretical materials, studies and research on psychological training in

* Author to whom all correspondence should be addressed: e-mail: izabella.eisler@insemex.ro; Phone: +40 254 541 621; Fax: +40 254 546277

organizational context. At national level certain professional categories, such as military, athletes and fire-fighters, benefit from psychological training. At present, instruction courses for training / re-training intervention and rescue personnel in toxic/ flammable/ explosive environments do not include psychological training. Unlike the situation found in Romania, international literature offers more information concerning the psychological preparedness of emergency response personnel (any persons engaged in the response to an emergency, including firefighters, police, civil defence/ emergency management officials, sheriffs, military and manufacturing and transportation personnel) (Ahmad et al., 2019; Baisheng et al., 2016, 2017).

In view of the above, the paper's degree of novelty lays in the development of a psychological training program for intervention/rescue personnel in toxic/ flammable/ explosive environments to help individuals feel more confident, feel they have more control and are better prepared for intervention, both psychologically and in terms of effective planning. The main objective of this program is to support intervention and rescue personnel to mitigate the impact of stress.

Within INSEMEX Petroșani the RAG (Rescuer Authorisation Group) technical group is established as a service to certify compliance with requirements of the "Normative regarding the organization of the intervention and rescue activity at industrial units with potential danger of toxic and/or explosive gas emissions", having as a specific service the training, authorization and certification of intervention and rescue personnel in toxic/ explosive/ flammable environments.

The development of the psychological training program for intervention and rescue personnel was based on documentation of psychological impact of emergency situations on intervention and rescue personnel, in order to highlight the important role that psychological preparation plays in increasing the level of safety and health at work (Găman et al., 2012, 2014; Pupăzan et al., 2012, 2017).

2. What is psychological training?

Organizations can keep employee's stress under control by resorting to the following means (Perțea, 2003):

- technics involving resource development - supporting employees so that they discover new ways to deal with events: social support, time management etc.

- work planning techniques - centred on the changes that can be made and how work is performed, focusing on career management and its planning.

- technics involving analysing and clarifying the employee's role - starting from the premise that the best information about the activity can be provided by the one who carries out the activity and implies discussions with the worker on his expectations regarding boss's behaviour.

- technics centred on work - which refer to actions that can be taken so that certain procedures change (work reorganization) and intrinsic motivation and interest increase (enrichment of work).

- technics for optimizing interpersonal relationships - based on the special role played by mutual support among colleagues in coping with stress.

- technics to modify organizational procedures - aiming at decentralization and employee involvement in decision making.

Psychological training of personnel is one of the ways in which stress prevention is achieved and it implies theoretical and practical activities (Perțea, 2003). Psychological training is a type of organizational intervention and refers to providing information on the nature of stress, post traumatic symptoms and identifying and developing ways to deal with them. The underlying assumptions of psychological training are that if people receive information about the symptoms they may experience following a trauma, they may find these symptoms less disturbing (Twiss and Kasperczyk, 2009). It involves normalizing the perception of transient stress responses, reducing expectations of pathology, maintaining safety, enhancing adaptation, reducing the stigma of responses to stress, encouraging social support and, if necessary, seeking further support. Improving psychological features such as feeling of coherence, resilience and psychological adaptability can facilitate coping with difficult, traumatic situations.

3. Material and methods

The psychological training program for intervention and rescue personnel was tested during January-September 2017, totalling 98 male participants, as seen in Table 1. Their distribution over age is shown in Fig. 1, most of them being mature men, aged 30 to 49.

Table 1. Psychological training test schedule

No.	Period of time	Number of participants
1	30.01-03.02.2017	10
2	06.03-10.03.2017	11
3	10.04-15.04.2017	10
4	12.06-16.06.2017	12
5	03.07-07.07.2017	24
6	18.09-22.09.2017	22
7	25.09-29.09.2017	9

The participants in each of the seven series were individuals following the instruction course for training and authorization of rescue personnel in toxic/ explosive/ flammable environments, held within NRD INSEMEX (Costa et al., 2015). This course was performed during five days long, and has one learning module each day, after the completion of which a psychological training module was inserted, also one each day.

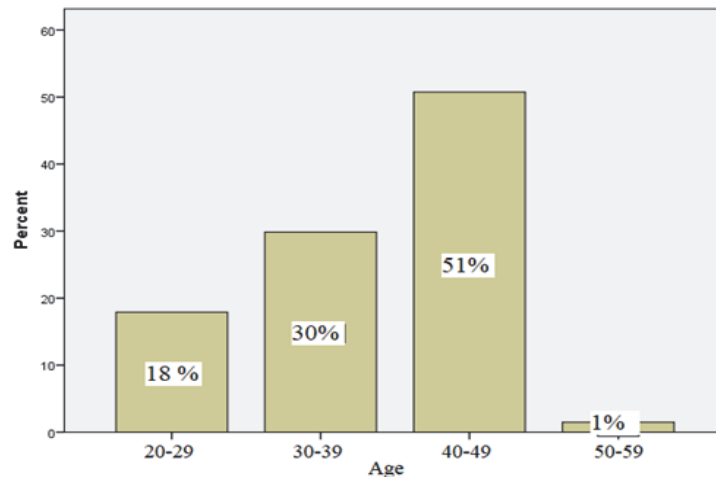


Fig. 1. Participant's distribution over age

The length of the instruction course (5 days) was one of the main reasons for splitting the presented psychological program into 5 modules. Each series had a different number of participants, depending on the number of learners of each instruction cycle. The starting point in the development of this psychological training program was to conduct a study on the psychological impact of emergency situations on intervention/ rescue personnel in toxic/ flammable/ explosive environments, in order to highlight the important role that psychological training has in increasing the level of safety and health at work (DeWolfe, 2000; Guterman, 2005). Once the importance of the psychological training programs has been established, the program has been developed and its efficiency and utility has been tested through its implementation within the training and authorization courses for intervention and rescue personnel held within NRDI INSEMEX Petroșani.

The psychological training program was structured in five modules, each held in different days, after the completion of theoretical and /or practical activities related to the course mentioned above. The choice regarding the number of modules was also justified by the fact that the volume of information to be brought in attention of participants is large and the duration of a module should be limited in time because attention and motivation for participation in activities can be maintained at higher levels over limited time periods (Pupăzan et al., 2015). The five modules of the training program followed the order in which they are presented below, starting from more general information and moving on to more practical information and applications. Each of the five modules, as well as their theoretical fundamentals are detailed below.

3.1. Module I of the psychological training program

The specific objective of this module is accustoming to objectives of the psychological

training program and taking a series of psychological tests aimed at detailed assessment of personality, cognitive functioning and other psychological functioning aspects. The time allocated for running this module is 75 minutes. The first module of the psychological training program briefly introduces intervention and rescue personnel to goals and role of psychological training in helping mitigate the impact of occupational stress. The aim is to motivate individuals to participate in the following modules by arousing curiosity about the proposed topic and to raise awareness regarding the importance of creating adequate expectations for crisis intervention and improving behavioural responses to them.

Psychological testing aimed a detailed assessment of personality and psychological functioning aspects (i.e. self-efficacy, self-esteem, robustness, anxiety, neuroticism and depression), evaluation of personal attitudes and beliefs, assessment of coping with stress as well as early identification and mitigation of the incidence of psychological dysfunction.

The materials used consisted of a series of psychological tests, respectively:

a. *ABCD-M personality test*, a tool that performs complex personality assessment, based on the psycho-lexical approach compatible with the Big Five system. Each individual evaluated in terms of personality received a synthesis profile as well as a detailed report, explaining and indicating the score obtained for each scale (all scales are shown in Table 2). At present, item phrasing is stabilized and ABCD-M's fidelity is undoubtedly at the level of other tests of this type in the US or Europe. The psychometric characteristics of ABCD-M in Romania generally have very good values. The ABCD-M manual shows both Alpha indices of internal consistency, calculated for the normative sample as well as validity indices. None of the scales of ABCD-M have Alpha lower than 60 internal consistency indices. Psychometric data on the ABCD-M can be found in the technical manual of the personality test (Minulescu, 2008).

Table 2. ABCD-M scales

Scales and number of items	Scale 1	Scale 2	Scale 3	Scale 4	Scale 5
Scale I Extraversion 30	Activism 6	Optimism 6	Humour 6	Interpersonal skills 6	Self-affirmation 6
Scale II Maturity 30	Respect 6	Adjustment 6	Friendship 6	Inhibition force 6	Self-force 6
Scale III Agreeableness 30	Altruism 6	Romanticism 6	Affective warmth 6	Empathy 6	Honesty 6
Scale IV Conscientiousness 30	Perseverance 6	Faultlessness 6	Rationality 6	Planning 6	Self-discipline 6
Scale V Self-development 30	Thoroughness 6	Tolerance 6	Development 6	Independence 6	Creativity 6

Test profiles were constructed by elaborating normative standards in T notes, allowing direct conversion of gross scores into major scales and facets. T scores presented in these profiles have an average of 50 and a standard deviation of 10. The median area, T 45 – T 55, represents the normal behaviour (marked as average), T 56 – T 65 and T 44 – T 35, represents normality with accentuated behaviour (marked as high and low) and the area > T 66 and < T 34 indicate extreme behaviours (marked as very high and very low).

b. the *Clinical Assessment System (CAS)*

The psychological tests included in CAS were selected based on the paradigm of scientific validated psychological diagnostic and clinical assessment. Therefore, CAS represents one of the most advanced (state of the art) psychological diagnostic systems. CAS includes (David, 2007):

- 5 clinical scales that evaluate the clinical picture, focusing on its most important components: distress, depression and anxious type. Some scales also assess health-related issues, ignored in most existing clinical evaluation systems. All of these psychological tests have very good psychometric qualities, cover the largest and most relevant clinical disorders and health state.
- 15 clinical scales that evaluate etiopathogenetic / sanogenic mechanisms associated with clinical pictures / health state. This association has been established after comprehensive analysis of literature (e.g. Cochrane Review, Pubmed, PsycInfo), which gives it remarkable scientific validity. The scales used within the psychological training program were:

- *Self-efficacy scale*, a scale of 10 items, measures an individual's beliefs about his ability to mobilize cognitive, behavioural and motivational resources to accomplish a task (Schwarzer and Matthias, 2007);

- *Self-esteem scale*, probably the most widely used scale for assessing self-esteem in the field of social sciences, it is made up of 10 items and measures stable and global assessment of own value (Rosenberg, 2007);

There are no cut-off points that mark of high and low levels of self-efficacy (SES) and self-esteem (SS). Based on a normal distribution of scores, the

SES and SS standard construction was based on normalized classes (5 classes expressed as percentage: 6.7%, 24.2%, 38.2%, 24.2%, 6.7%). A high SS score indicates a high level of self-esteem while a low score indicates a low level of self-esteem. Class 1 signifies very low level and class 5 very high level of self-esteem.

- *Attitudes and beliefs scale 2*, a scale of 72 items, measures irrational beliefs, absolutist patterns of thinking that constitute a predisposition to pathology (DiGiusepe et al., 2007).

Psychometric data on each scale can be found in the technical manual of the assessment system (David, 2007).

c. *The strategic approach to coping scale*, a tool that measures the behavioural dimension of coping, also taking into account the social aspects of strategies by which someone is dealing with stressful situations.

The instrument is built based on the multiaxial coping model created by Hobfoll and his collaborators, to capture differences between men and women in coping with stress, without a priori valuing one of the genders. The standardization study shows that the scale is a precise and valid tool for assessing the behavioural dimension of coping on the Romanian population. The standard for "Attitudes and beliefs scale 2" test was built on five normalized classes: class 1 includes subjects having the lowest level of irrationality and class 5 those with the highest level of irrationality. Psychometric data on the test can be found in the technical manual (Budău and Albu, 2010).

d. *DSR-15 scale* for measuring robustness, concept categorized as cognitive factor that expresses personal attitudes and beliefs, involving the following three features: control, commitment, challenge.

This instrument sought to correct a number of problems that existed with previous hardiness measures, including long and unwieldy items to measure the control dimension. Also, all previous hardiness items were negatively worded, which made these early measures more vulnerable to contamination by neuroticism. DRS has proven to be a highly reliable and valid measure of hardiness-resilience in a wide range of studies. In addition to the original 45-item scale, subsequent improvements have

led to 30-item and 15-item versions (<http://www.hardiness-resilience.com/>).

The DRS-15 scale was adapted for Romania population. Data analysis found that the Romanian version has good psychometric qualities (Vasiliu et al., 2015). The test's standard was divided into five standardized classes (according to the original version), including 6.7%, 24.2%, 38.2%, 24.2%, and 6.7% of the normative sample. The distribution of standardized classes is shaped as a normal Gaussian distribution.

3.2. Module II of the psychological training program

The specific objective of this module is represented by understanding and recognition of stress-related symptoms associated with intervention in dangerous situations, to help develop mechanisms for adapting to professional demands. This module took 30-45 minutes. The activities consisted of presentations and discussions (on stress-related characteristics in the context of rescue activities, types of stress, stress symptoms) aimed at normalizing perception regarding transient reactions to stress, reducing expectations for pathology, reducing stigma for stress reactions, encouraging social support and, if necessary, search for further specialized support. This module also included discussing the results of Strategic Approach to Coping Scale.

The presentations and discussions (Fig. 2) addressed the following topics: definition of stress, types of stress, relationship between stress and performance, steps to be psychologically prepared, effects of stress on the body, stress in the context of intervention and rescue activities, stress symptoms, psychological trauma and posttraumatic stress

disorder, normal responses of intervention personnel to a traumatic event (Găman et al., 2017; Simion et al., 2017).

3.3. Module III of the psychological training program

The specific objective of this module is to identify irrational thinking and change negative thinking patterns. Time allocated for this module was 60 minutes. In this module, strategies inspired by cognitive-behavioural psychotherapy and rational-emotional therapy were used to teach participants to manage their emotional states by identifying and modifying negative thinking patterns. Participants were acquainted with the concepts of "dysfunctional negative thoughts" or "irrational cognition", which generate maladaptive emotions: "all or nothing" thinking, overgeneralization, focusing on negativity, disqualifying the positive, hasty conclusions, catastrophizing, affective judgment, absolutist requirements, labelling etc. After identifying negative thoughts, participants were taught to find rational alternative thoughts to replace irrational ones through counter-argumentation exercises (addressing irrational questions to provocative questions). This module also included discussing the results of "Attitudes and beliefs scale 2".

Activities consisted of presentations and discussions that addressed the following topics: cognitive theory of human mind, namely the rigorous ABC therapeutic model, developed by cognitive-behavioural approaches (Fig. 3), information processing, irrational cognitions and personal development by discussing results of personal attitudes and beliefs assessment.

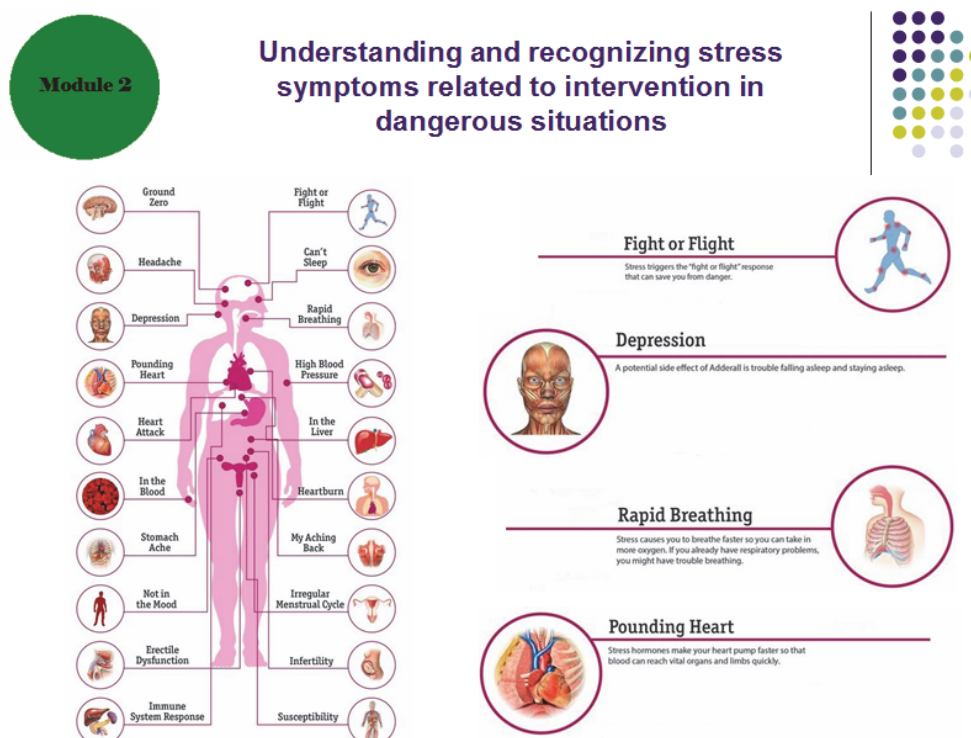


Fig. 2. Graphics used in module II

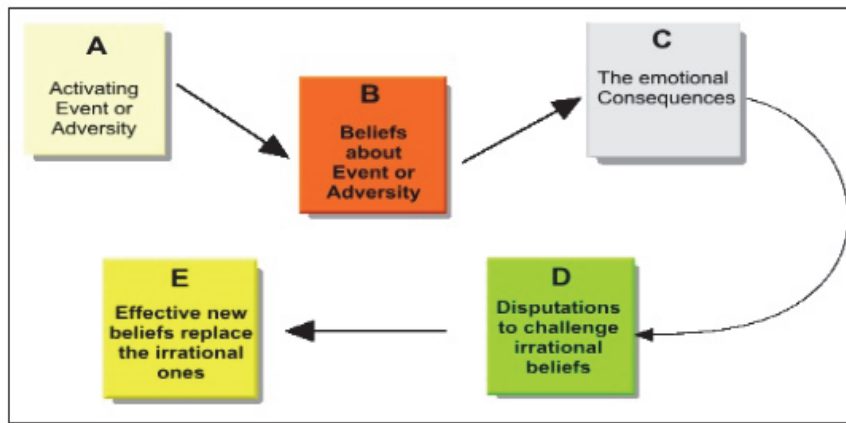


Fig. 3. Architecture of human cognitive system:

A = activating event (internal and external stimuli).

B = personal beliefs (the cognitive element of information processing). They interpose between the activating event and behavioural, cognitive, physiological or emotional consequences.

C = behavioural, biological /physiological and emotional responses.

To these basic components two more are added, with a major role in the psychotherapeutic intervention, transforming the ABC model into the ABCDE model:

D = restructuring of maladaptive and irrational cognitions.

E = assimilation of new adaptive and rational cognitions, replacing previous ones.

3.4. Module IV of the psychological training program

The specific objective of this module is accustoming to general stress prevention methods and traumatic stress management and development of mechanisms for adapting to psycho-professional demands. The time allocated for this module was 45 minutes. The activities consisted in presentations, lectures and discussions that addressed the following topics: identification and monitoring of stress factors and awareness of own stress reactions (worksheets), developing skills and behaviours for stress management, problem solving and decision making, practical activities to develop lateral thinking as an essential element in solving problems, establishing and maintaining adequate social support and developing a healthy lifestyle, relaxation exercises - breathing control technique, development of self-confidence and unconditional acceptance (discussing the results of robustness, self-efficacy and self-esteem tests).

3.5. Module V of the psychological training program

The specific objective of this module is to identify personality factors that play a role in sanogenesis. The time allocated for the module is 45 to 60 minutes. Within this module discussion focused on the results of tests that assess general personality traits as well as self-efficacy, self-esteem, robustness in the context of understanding the role of immunogenic factors in coping with stress. Also, this last module included the evaluation of the program's utility, by questioning participants about the perceived benefits of it. The materials used in this module were: the psychological profile of the intervention and rescue personnel in toxic/ inflammable /explosive

environment (Kovacs et al., 2017), assessment of coping styles most often used by intervention and rescue personnel in toxic /flammable /explosive environments undergoing authorization /re-authorization (Kovacs et al., 2017) and psychological profiles of participants, with emphasis on personality profiles.

4. Results and discussion

Results of the psychological tests mentioned above were communicated to participants and discussed within different modules of the program. Results of the self-efficacy test (SES), the scale that measures individuals' conviction that their own actions are or can be responsible for the success of a particular activity, are shown in Fig. 4.

Most of respondents have average and even high levels of self-efficacy, meaning that they are convinced they have the capacity to cope with specific difficult situations. They will allocate resources in an optimum manner if they face difficult situations and will be more task persistent than the 6% of participants with a low level of self-efficacy, provided that their skills are similar.

In the context of the psychological training program presented in this paper, we intended to increase self-efficacy regarding the ability to control own responses and to deal with potentially stressful situations (especially those associated with emergency interventions) by using psychophysiological regulation methods. Thus, module IV of the psychological training program includes cognitive-behavioural intervention procedures that can produce physiological changes either in the sense of equilibrating the vegetative balance (relaxation response) or in the sense of unbalancing it (activation).

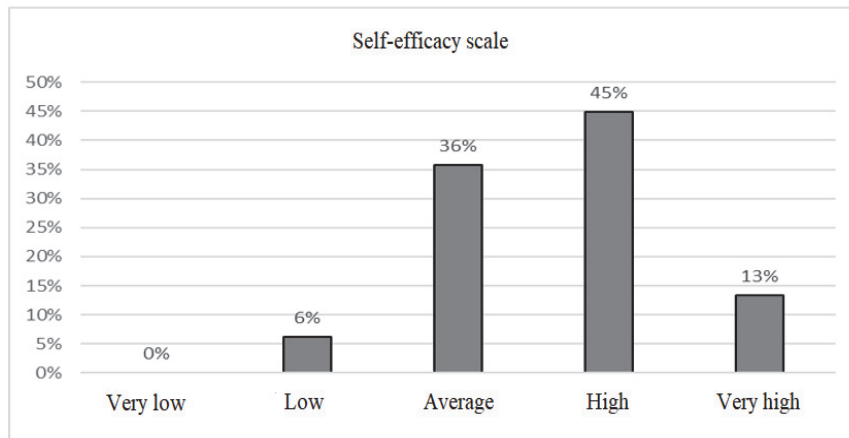


Fig. 4. Results for the self-efficacy test

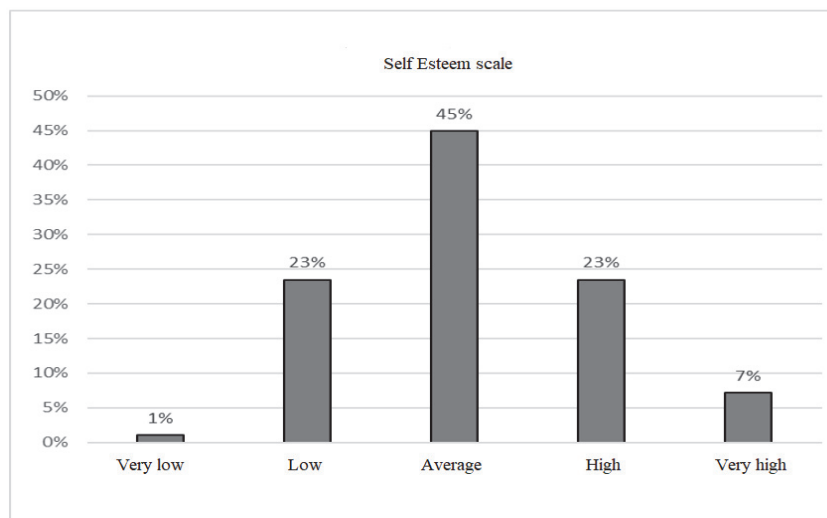


Fig. 5. Results of the self-esteem test

Specifically, these are breathing control techniques: abdominal breathing (with self-suggestion formulations), breathing for energetically recharge the body, breathing with energy distribution in the body, breathing to relieve pain and breathing to increase the ability to concentrate attention (Marineanu, 2015).

A global assessment of one's own person in positive terms does not necessarily equate to mental health or functional behavioural consequences. It is advisable that self-esteem has an average level, as most of the participants in this study (respectively 45%), because a very low self-esteem, as well as a very high self-esteem, can lead to psychological problems (Fig. 5). In the context of the psychological training program presented in this paper, development of self-esteem was pursued by several methods. Thus, detailed discussion related to the significance of test results contributed to self-knowledge and personal development of participants, this method being part of modules II-V. Also, module III included cognitive techniques to reformulate a situation, reformulation facilitating evolution, being a stimulating factor (positive feedback). In this respect, a series of psychotherapeutic recommendations have been

formulated throughout the psychological training program, on creating a relaxed work environment in which individuals are encouraged to express themselves and the use of verbal and nonverbal encouragement of moderate intensity (Lauria et al., 2017; Sommera et al., 2017).

Low, very low and under certain conditions, even average levels of irrationality are indicators of the fact that individuals have non-categorical personal beliefs that lead to positive or negative but adaptive and flexible emotions without interfering in the way of reaching individual or group goals (Fig. 6) (DiGiuseppe et al., 2007). Even average levels of irrationality should be considered as potential vulnerabilities in the context of dealing with highly stressful situations, especially when accompanied by disimmunogenic personality traits.

High and very high levels of irrationality are associated with disadaptive cognitive structures, dysfunctional negative emotions generating emotional distress, with depression and anxiety. These individuals have a low level of unconditional self-acceptance, which represents a protective factor in dealing with negative events in life.

Personality trait called robustness, which can alleviate the effects of stress, has a medium and high level of development among participants. Strong robust individuals, like 31% of participants, show three fundamental features of personality (Fig. 7). They tend to become heavily involved in what they do, usually act in the belief that through their work they will make a difference and perceive the majority of life changes as beneficial and normal for personal development (Vasiliu et al., 2015). Some specialists believe that robustness acts as a buffer against disease, being correlated with low blood pressure, low levels of fatty acids in the blood, low psychological tension and a state of marked happiness (Băban, 1998; Iamandescu, 2012).

Interventions to increase robustness fall into the same area of personal development as interventions to increase self-esteem and self-efficacy. Within this psychological training program, this was followed by the activities of modules II-V, namely

detailed discussions on the significance of psychological test's results, identification of irrational ideas and changing negative models of thinking and familiarization with the prevention methods of general stress and management of traumatic stress, developing mechanisms for adapting to psycho-professional demands.

As far as behavioural coping strategies are concerned, intervention and rescue personnel trained within INSEMEX uses both adaptive coping strategies (assertive action, prudent action etc.) and strategies whose use is associated with emotional and even psychopathological problems (aggressive action, avoidance etc.) (Fig. 8) (Budău and Albu, 2010). Awareness of using one strategy or another (with the benefits and disadvantages involved) along with psychological training and personal development can help individuals learn the use of adaptive strategies detrimental to those associated with emotional distress (Kovacs et al., 2017).

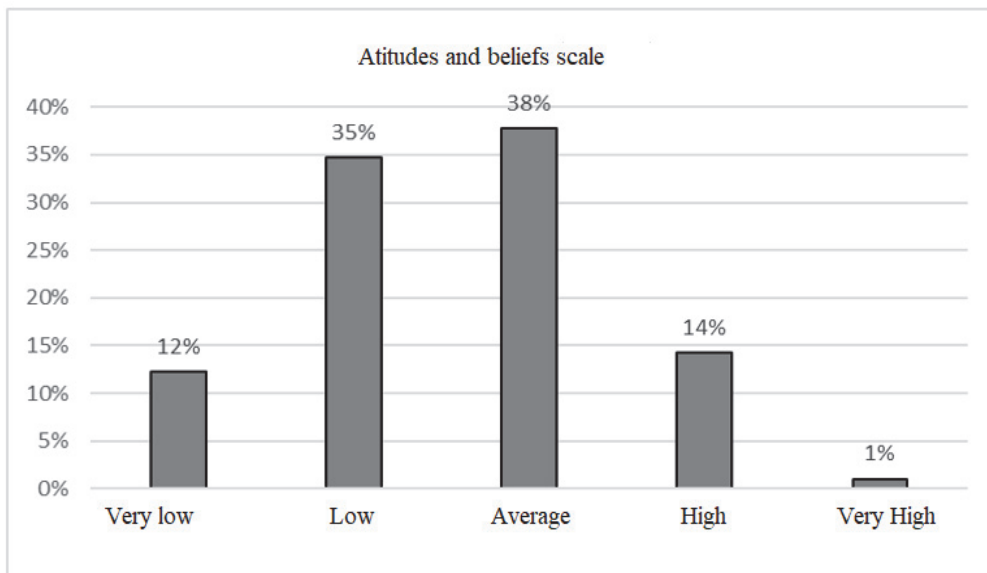


Fig. 6. Results of the attitudes and beliefs test

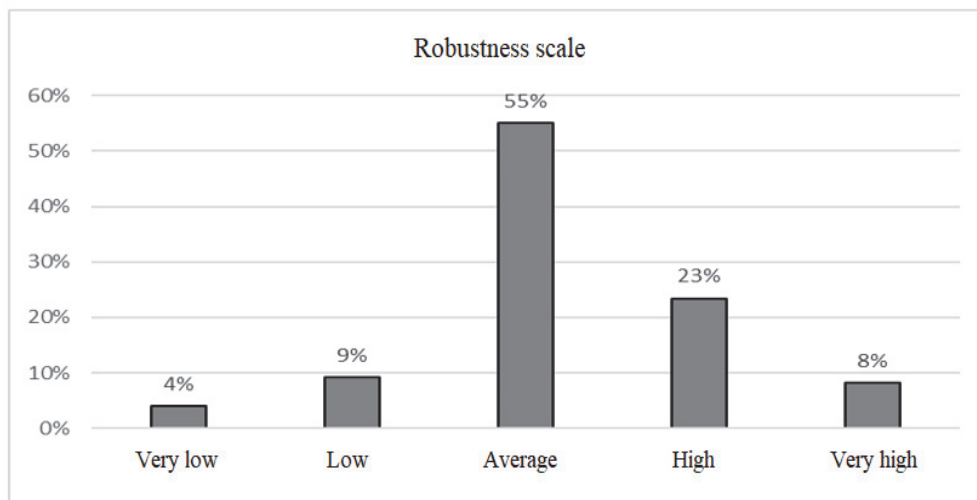


Fig. 7. Results for robustness scale

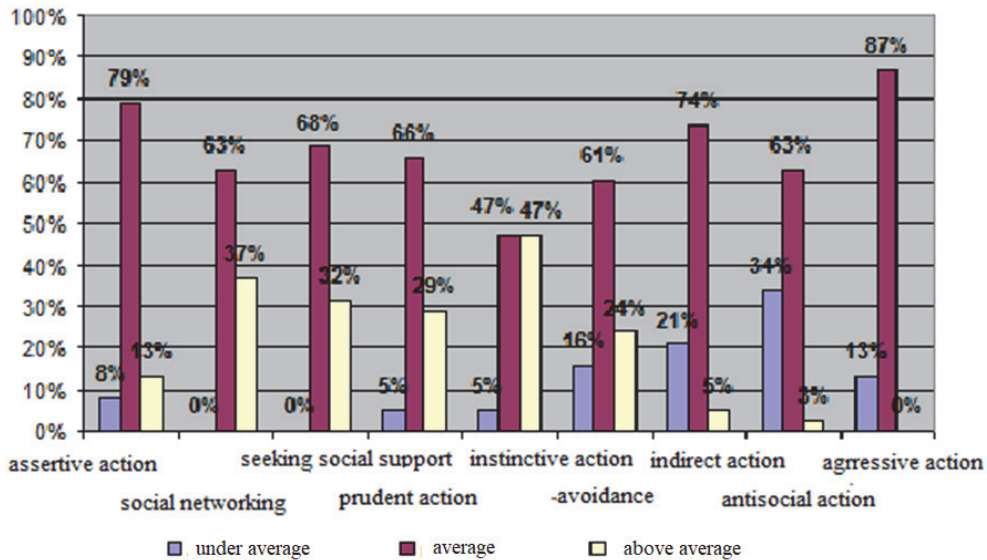


Fig. 8. Results for strategic approach of stress

In the context of the psychological training program presented in this paper, the topic of coping with stress was addressed through activities of module IV, the specific objective of this module being accustoming to general stress prevention methods and traumatic stress management and development of mechanisms for adapting to psycho-professional demands. Regarding results of ABCD-M personality test, we chose to present only the results for optimism, humour, personal affirmation, force of inhibition, will and independence scales, considering that these are most relevant for our purpose. These results are shown below.

High optimism, as shown by most participants (see Fig. 9), indicates behaviours dominated by open affection, the tendency to live positive emotions. Also, high levels of humour indicate flexible, adaptable individuals, humour being the factor most relevant to predicting the ability to take life lightly. These people are generally satisfied with life, which is a generally favourable context for interpreting stressful situations in positive terms and accepting them as opportunities for personal development (Minulescu, 2008).

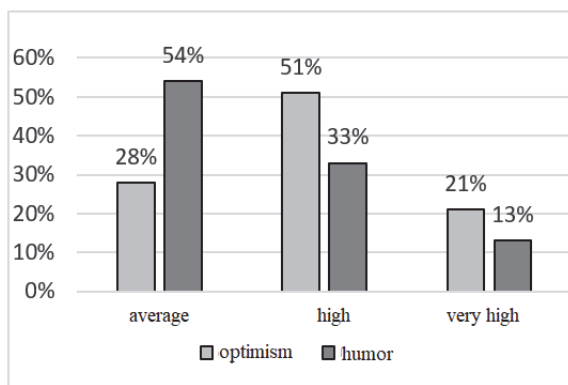


Fig. 9. Results for optimism and humour

Along with this tendency to live positive emotions, participants are also characterized by emotional stability, in their vast majority (Fig. 10). Behaviourally, this translates into that they think before they act, they do not get easily upset, they are not impulsive or unstable.

Both personal affirmation and independence are developed at medium, high and very high levels for most participants (Fig. 11). This means that these individuals are confident in their ability to succeed, self-confident, need success and efficiency. They cope with challenges, face ambiguity without losing self-confidence.

Therefore, we can state that, apart from a few marginal cases, the participants in this research do not exhibit vulnerability to stress in terms of personality. These individuals mostly fall in what literature calls the type B of behaviour, respectively they cope with stress in a relaxed manner and show tolerance and great ability to cope with unfavourable stimuli (Losii, 2010).

Assessment of the perceived utility of the psychological training program was achieved by questioning the participants at the end of the 5th module, resulting in the fact that about 70% of them considered the program to be useful and very useful and no participant considered it to be useless (Fig. 12). In order to get a more detailed picture of the strengths and weaknesses of the psychological training program as assessed by the participants, this overall assessment must be accompanied by an assessment of each module.

5. Conclusions

All personality traits, modelled by an individual's biography, are involved in the individual's response to a potential stressor, conferring it a noxious significance, imaginary or real, able of leading to stress.

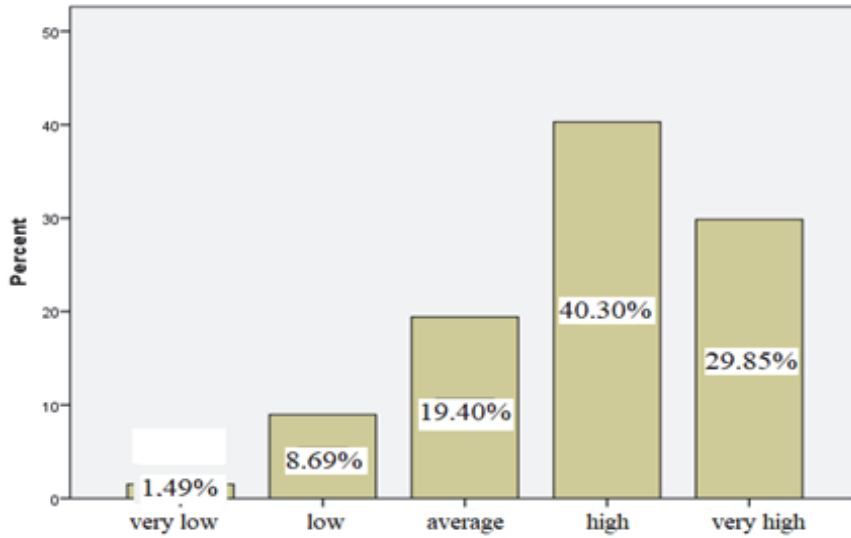


Fig. 10. Results for force of inhibition

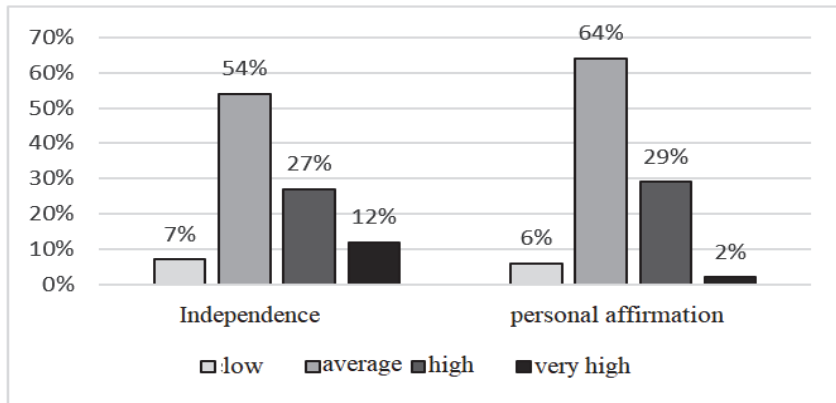


Fig. 11. Results for personal affirmation and independence

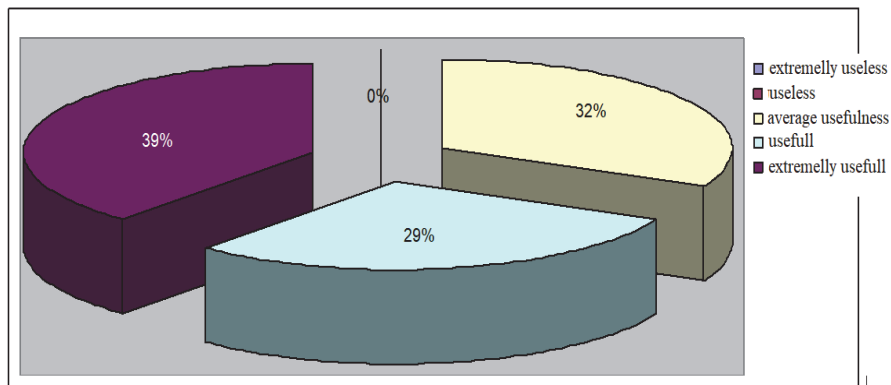


Fig. 12. Perceived utility of the psychological training program

Psychological training is likely to help intervention and rescue personnel cope with emotional burden that characterizes their work. During the process of authorization / reauthorization of intervention and rescue personnel within INCD INSEMEX, during January - September 2017, a 5 modules psychological training program for intervention and rescue personnel was implemented, totalizing 98 participants.

Most of the rescuers who participated in the psychological training program have normal and even high levels of self-efficacy, meaning that they are convinced that they have the capacity to cope with specific difficult situations. In the context of the psychological training program presented in this paper, we intended to increase self-efficacy regarding the ability to control own responses and to deal with potentially stressful situations (especially those

associated with emergency interventions) by using psychophysiological regulation methods.

Building a realistic positive thinking about one's abilities to achieve an adequate level of self-confidence plays an important role in building appropriate mechanisms to cope with stress, team leaders being able to intervene in this regard both at individual and at group level.

Interventions to increase or enhance robustness fall into the same area of personal development as interventions to increase self-esteem and self-efficacy. As part of the psychological training program, this was followed through the activities of modules II-V.

As far as behavioural coping strategies are concerned, participants in this research use both adaptive strategies and strategies whose use is associated with emotional and even psychopathological problems. Awareness of using one strategy or another (with benefits and disadvantages involved) along with psychological training and personal development can help mine rescuers learn the use of adaptive strategies to the detriment of those associated with emotional distress.

Apart from a few marginal cases, the participants in this research do not exhibit vulnerability to stress in terms of personality.

Along with physical resistance and training in conditions as close as possible to future reality of interventions, under the action of stressors and actual problematic situations, psychological training can contribute both to the success of intervention and rescue operations and to appropriate management of emotions generated by emergency response.

Acknowledgements

This paper was carried out through the Nucleu Program, implemented with the support of Romanian National Authority for Scientific Research, project no. PN-16 43 01 12.

References

- Ahmad A., Dash A.K., Sinha A.K., Bhattacharjee R.M., (2019), *Critical Review of Present Rescue Practices in Indian Mines: Suggestions for Effecting a Qualitative Improvement in the Existing Scenario*, Proc. of the 11th International Mine Ventilation Congress, Springer, Singapore, 913-922.
- Baisheng N., Xin H., Fei X., Jiang C., Xiaobing L., Yangyang M., Jinxin H., (2017), A comparative study of vocational education and occupational safety and health training in China and the UK, *International Journal of Occupational Safety and Ergonomics*, **24**, 1-10.
- Baisheng N., Xin H., Xin S., Anjin L., (2016), Experimental study on physiological changes of people trapped in coal mine accidents, *Safety Science*, **88**, 33-43.
- Budău O., Albu M., (2010), *Strategic Approach to Coping Scale (SACS)* (in Romanian), SC Cognitrom SRL Publishing House, Cluj Napoca.
- Bogathy Z., (2004), *Work and Organizational Psychology Manual* (in Romanian), Polirom Publishing House, Iasi, 179-193.
- DeWolfe D.J., (2000), *Responses to Disaster, Stress Prevention and Management, Additional Training Needs and Options*, In: *Training Manual for Mental Health and Human Service Workers in Major Disasters*, U.S. Department of Health and Human Services, On line at: <https://www.nationalservice.gov/resources/disaster-services/training-manual-mental-health-and-human-service-workers-major-disasters>.
- Costa C., Pupăzan D., Danciu C., Nistor C., (2015), *Implementing Modern Physical Training Methods for Mine Rescuers at INSEMEX Romania*, 15th International Multidisciplinary Scientific GeoConference SGEM, Book 1, Vol. 3, 383-390.
- David D., (2007), *Clinical Evaluation System* (in Romanian), RTS Publishing, Cluj Napoca.
- DiGiuseppe R., Leaf R., Exner T., Robin M., (2007), *Attitudes and Beliefs 2 Scale*, In: *Clinical Evaluation System*, David D. (Coordinator), RTS Publishing, Cluj-Napoca, 3-15.
- Găman G.A., Pupăzan D., Ilie C., (2012), Development and implementation of an expert system for the management of crisis events in mining industry, *Environmental Engineering and Management Journal*, **11**, 1331-1336.
- Găman G.A., Pupăzan D., Ilie C., (2014), Application of thermo-vision systems during intervention and rescue activities in toxic, flammable and explosive environments, *Environmental Engineering and Management Journal*, **13**, 1415-1420.
- Găman G.A., Pupăzan D., Călămar A.-N., Ilie C., Irimia A., (2017), Research on mines rescue brigadesmen's training in a new training facility designed and built for confined spaces, *Environmental Engineering and Management Journal*, **16**, 1275-1281.
- Guterman P.S., (2005), *Psychological Preparedness for Disaster*, On line at http://www.ceep.ca/resources/Guterman2005_Psychological_Preparedness_for_Disaster.pdf
- Iamandescu I.B., (2012), *Medical psychology. Stress vulnerability*, Course no. 5 (in Romanian), On line at: <https://dokumen.tips/documents/curs-5-psihologie-medicala-vulnerabilitatea-psihiica-la-stres.html>.
- Kovacs I., Kovacs M., Găman G. A., Pupăzan D., C., (2017), *Psychological Training Model for Intervention And Rescue Personnel*, International 17th International Multidisciplinary Scientific Geoconference SGEM 2017 Conference Proceedings, **17**, 323-332.
- Lauria M.J., Gallo I.A., Rush S., Brooks J., Spiegel R., Weingart S.D., (2017), Psychological skills to improve emergency care providers' performance under stress, *Annals of Emergency Medicine*, **70**, 884-890.
- Loşii E., (2010), Influence of personality traits on the type of reaction in occupational stress, *Psychology, Special Pedagogy, Social Assistance*, **18**, 55-62.
- Minulescu M., (2008), *ABCD-M Scales Description*, In: *ABCD-M Technical Manual*, (in Romanian), Sinapsis Publishing, 87-116.
- Perţea G., (2003), *Issue's History, Methods and Conclusions of the Psycho-Profession-Graphical Study: Objectives and Hypotheses of the Research*, In: *Applied Military Psychology*, (in Romanian), Academy of High Military Studies Publishing, Bucharest, 37-83.
- Pupăzan D., Găman G.A., Ilie C., (2012), Information system for simulation and assessment of rescuers interventions in toxic, explosive and flammable environments, *Environmental Engineering and Management Journal*, **11**, 1337-1342.
- Pupăzan D., Călămar A., Găman G.A., Kovacs I., Ilie C., (2015), *Importance of Mine Rescuer's Vocational Guidance and Selection Process*, Proc. of 15th

- International Multidisciplinary Scientific Geoconference SGEM, vol. 3, 895-902.
- Pupăzan D., Ilie C., Irimia A., Gireadă A., Kovacs I., (2017), Study on the behaviour of mine rescue brigadesmen exposed to high temperature and humidity in the training facility, *Environmental Engineering and Management Journal*, **16**, 1355-1360.
- Rosenberg M., (2007), *Rosenberg Self-esteem Scale*, In: *Clinical Evaluation System*, David D. (Ed.), RTS Publishing, Cluj-Napoca, 3-8.
- Schwarzer R., Matthias J., (2007), *Self-efficacy Scale*, In: *Clinical Evaluation System*, David D. (Ed.) RTS Publishing, Cluj-Napoca, 3-9.
- Simion S., Kovacs M., Toth L., Ilie C., Gireadă A., (2017), Workers exposure to noise in surface extractive industry, *Environmental Engineering and Management Journal*, **16**, 1367-1372.
- Sommerer M., Nja O., Lussand K., (2017), Police officers' learning in relation to emergency management: A case study, *International Journal of Disaster Risk Reduction*, **21**, 70-84.
- Stoica M., Buicu F., (2010) Occupational stress management, *Health Management*, **XIV/2**, 8-10.
- Ticu C., (2004), *Psychological Assessment of Personnel*, (in Romanian), Polirom Publishing House, Iasi.
- Twiss C., Kasperczyk R., (2009), *Other Intervention Models and Evidence*, In: *Critical Incident Management*, White Paper, 10-14, On line at: <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwjS8LDjxurgAhWizqYKHbKYCTwQFjAAegQICRAC&url=http%3A%2F%2Fwww.convergeinternational.com.au%2Fdocs%2Fresearch%2F2c-critical-incident-management-white-paper-nov-2009.pdf%3Fsfvrsn%3D0&usq=AOvVaw2iUn7U2KsjWRyWvYEbPsW4>.
- Vasiliu D., Pascal D.A., Marinescu G., (2015), Assessing robustness. Psychometric properties for dispositional resilience scale: DRS-15, *Psychological Studies Journal*, **2**, 184-195.