

## Analysis of the impact of crisis situations on aviation specialists

**Rudolf Volner<sup>1</sup>,**

<sup>1</sup>*LET'S FLY, s.r.o., International airport Ostrava, Mošnov 403, Czech Republic,*

*E-mail: [rudolf.volner@letsfly.cz](mailto:rudolf.volner@letsfly.cz)*

**Svetlana Hubková<sup>2</sup>**

<sup>2</sup>*Institute Juraja Palesa in Levoca, Pedagogical faculty, The Catholic University in Ruzomberok,*

*Slovak Republic, E-mail: [hubkova.svetlana82@gmail.com](mailto:hubkova.svetlana82@gmail.com)*

**ABSTRACT** - This article describes the basic aspects of crisis situations for airline staff. It describes the basic psychology of staff selection, the relationship between individual aviation specialists, and crisis situations that may occur in the work of aviation specialists. The analysis focuses on stress management in air transport.

**KEYWORDS** – analysis, aviation specialist, crisis situations

### INTRODUCTION

It appears that in the 21st century world, events that are severely traumatic to their participants and can cause serious mental disorders (so-called crisis events) are more and more common. Whether these are terrorist attacks (the last time in April 2006 in the Egyptian resorts on the Sinai Peninsula or, for example, attacks in the summer of 2005 on London Underground and city buses), war conflicts (Iraq, Afghanistan, ...), natural disasters (e.g. floods in the Czech Republic , Hurricanes in the US, tsunamis in Southeast Asia, ...), or serious traffic accidents that bring extensive transport development, all these events bring people - among other things - tremendous psychological suffering.

### THE DIFFERENCE BETWEEN THE CRISIS EVENT AND THE STRESS SITUATION

If we stay with air traffic, then an example of a stressful situation can be a situation where a more serious technical fault occurs, which requires a quick and correct response. For the crew - aware of the potential consequences of not managing such a situation - this means increased mental and emotional stress and increased stress levels. But if the situation is professionally managed, then it will not be a crisis event that would trigger a crisis response as described above for participants (crew, passengers or air traffic controllers). The crisis event may be at a time when such a situation would result in an injury or death accident. These circumstances are very traumatic for the participants, they can trigger a crisis response, and as such they deserve to provide participants with crisis intervention.

### PSYCHOLOGICAL SELECTION OF PERSONNEL

The impact of a critical event on its participants and the ability to cope with it does not only depend on the nature of the event itself, its severity, extent, etc., but first of all much more on the people themselves - their mental abilities and personality traits. Some people can suppress emotions in such situations and act with a "cool head". This type of personality is essential for exposed aeronautical professions (pilots, air traffic controllers and cabin crew).

The aim of this chapter is to get acquainted with the operational capabilities and personality traits (generally psychological factors), which are important for the adherents of the pilot profession and which are also investigated during the initial examinations. The individual psychological factors are briefly described and their relationship to behavior in stressful situations is indicated. I also mention the set of psychological tests, the Vienna Test System (VTS).

Its part intended for use in aviation. This is a test battery made by the Austrian company Schuhfried,

which is designed to test the required features and capabilities of aviation personnel.

The rationale behind the inclusion of this chapter is my belief that staff selection, education in areas such as stress management is a significant prevention of staff failures in stressful situations.

- Generally, the ratings of the pilot profession - Flight performance (but also other aeronautical professions) requires some cognitive, psychomotor and interpersonal skills necessary for a reliable job performance, especially with a high workload and stress,

From the point of view of the structure of psychic variability of the personality, emotional stability, low emotional excitement, the tendency to maintain even in emotionally exacerbated situations of calm and balance, emotional balance, self-control and a solving approach to reality play the most important role in the personality profile of “*ideal*”. The stability of the regulatory, target orientated behavior associated with feelings and manifestations of responsibility for their decisions and activities with sufficient resistance to disintegrating situational influences also plays a very important role. His place in this personality structure also has the ability to adapt to emerging circumstances, to modify his behavior in accordance with situational changes [28],

- Operational capabilities - The total requirements for pilots (applicants or holders of first class health certificates) require operational capabilities such as cognitive and psychomotor skills. Complexity of tasks and time stress, which is an integral part of the activity on board the aircraft, require precise and fast work performance. From the point of view of psychological testing, it is required to perform the tests as far as possible under time pressure. Appropriate performance in the categories of benefits listed below is considered necessary,
- Personal Factors - Personality factors that are relevant to the assessment of the pilot profession are listed below. Most of these features are well known and can be identified by conventional assessment methods (e.g. questionnaires). Personality factors are relatively stable during human life and influence behavioral behavior in different situations.

A certain combination of more prominent personality traits can also create typical syndromes. In other words, individual personality factors cannot be assessed independently, but they must be viewed “*comprehensively*” and take into account the whole set of these personality factors. We often get this information by observing behavior. The psychometric examination should follow a psychological interview that offers a good opportunity to do so,

Personal factors are both innate - inherited in the genes - and acquired in the early stages of life. One of the greatest challenges for psychology is to understand and determine how much people bring to their lives the ancestors - their biological/genetic nature - and to what extent their personality traits are influenced by their surroundings and events. At present, it is generally accepted that these two influences together form personality and mental processes. Both inheritance and education and experience contribute more or less to the creation of personality,

- Defining the notion of personality - This term includes behavioral characteristics relating to an individual that are very important in establishing relationships with others. Indicates the overall organization of motives, attitudes, views, perceptions and behaviors,
- Personality, attitude and behavior - Attitude means the way one thinks and has feelings about an object and/or a group of objects. Attitudes are learned not congenital and pose a tendency to respond - positively or unfavorably, towards the “*goal*” of attitude. Behavior is then an external result of both personality and attitudes. However, breeding is not always a natural result, because it can be controlled and modified if there is motivation and reason for it. We can adapt our behavior to the conditions and/or the person we come into contact with at the moment. This ability is especially important for a pilot flying and working with colleagues of many diverse and varied personalities. The correct conservation in stressful situations is contributed if the pilot has adequate self-confidence and confidence in his/her own abilities, i.e. if his/her attitude is “*positive*”. This helps him overcome the difficulties and manage the difficult situations,
- Dimensions of personality - Personality, attitudes and opinions cannot be studied in isolation, but must be judged according to what one says or does. Personality can be classified in many dimensions. Beyond the basic dimensions, extraverts/introverts and anxiety/stability can be taken, but other traits such as warmth and socialism, impulsiveness, stubbornness, dominance, courage contribute to shaping a person's personality,

- Extravagance and anxiety - At its basic level, extraversion can be associated with courage, impulsive behavior and socialism.

Anxiety is usually associated with emotional instability, tension and suspicion. Since extraverts and anxiety are not related to one another, some people can be anxious and extrovert, others anxious and introverted.

The results of a series of tests or questionnaires can be plotted on a simple, two-dimensional personality chart with axes indicating the degree of extrovertness and anxiety. Most people will be in the middle of the chart.

As the deviation from the average increases, the characteristics of the personality become more pronounced, for example:

- Anxiety extrovert will be considered aggressive and annoying,
- Stable introvert for thoughtful and balanced,
- The anxiety introvert will seem rational and pessimistic.
  - Stable extroverts will appear receptive and comfortable.

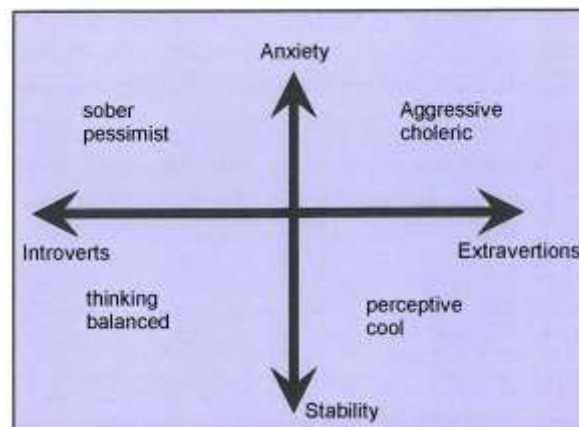


Fig. 1 Personality factors

- Personality and air accidents - The human personality played a role in many air accidents. Anxiety extroverts tend to cause accidents caused by risky actions. Anxiety introverts tend to be more accustomed to accidents where their inflexible, more deliberate and slower progress can lead to an inadequately quick and responsive response to an emergency situation and to failure to manage their task when under pressure, Risk assessment and acceptance is the biggest problem in many accidents, especially in single-pilot operations. Sometimes the risk may be undergoing for personal reasons (e.g. when the pilot tends to show off), but sometimes the risk may be underwritten for commercial reasons,
- Preferred personality type:
  - Civil aviation - A pilot that is stable and extrovert is preferred, but it is questionable whether it really represents the optimal type of personality for flying. With constant progress in pilot automation, coupled with longer periods of very low psychological use, almost bored (in a cruise flight), this all rather shifts the optimal type of personality more towards introvert, nevertheless the pronounced introvert will never be the optimal type Personality,
  - Military aviation - Military flying with its requirements to fly on the borderline of human possibilities and at the limit of machine possibilities and taking greater risk requires different personality characteristics than those required by civilian transport pilots.

The pilot must also have a self-discipline and have the ability to control the inner emotions of the external action. These personality traits are essential for an "ideal" pilot.

## MODEL OF HUMAN NEEDS

Maslow [26] attempted to define motivation as the satisfaction of human needs and sort them into a hierarchical structure.



*Fig. 2 Maslow's pyramid needs*

At the bottom are those needs that need to be satisfied first. From them, the hierarchy continues to the needs associated with one's own personality. Once lower needs are met, higher priority needs will be given priority. Self-realization is at the highest level of human needs.

Every step in the hierarchy can be combined with flight safety. A mentally and physically satisfied pilot who works with certainty as a member of a highly qualified team to carry out his task - a seamless and safe flight - is one of the basic conditions of aviation safety.

### A BASIC MODEL SHOWING TWO INDEPENDENT SOURCES OF MOTIVATION

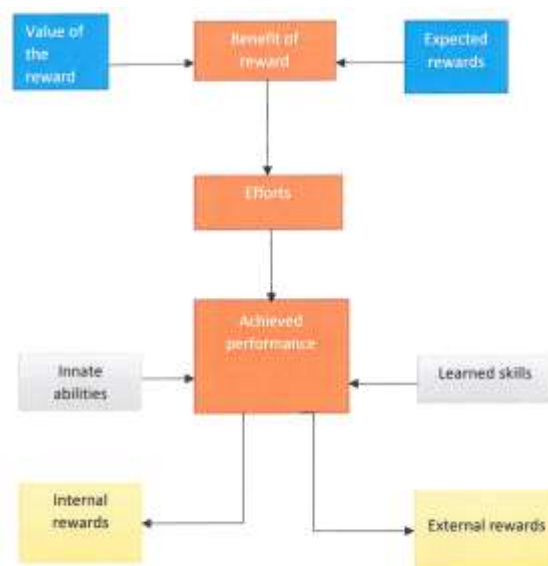
This model illustrates two independent sources of motivation and also shows the relationship between motivation factors and performance.

These two sources are:

- the perceived value of the reward,
- Probability of achieving it.

As has been mentioned, people appreciate the rewards differently. The reward for performance can be of two types - inner (feeling of pride, feeling of fulfillment, ...) or external (salary, promotion, ...).

If the rewards are tied to performance and are visible, then the result is higher job satisfaction and therefore higher performance. Many people also feel more satisfied if they have the goals to meet, and if these are realistic, then these goals also contribute to higher job satisfaction.



*Fig. 3 Sources of motivation*

## HERZBERG'S TWO-FACTOR THEORY OF MOTIVATION

The theory of Frederick Herzberg [15] has contributed to the study of human relationships and motivation within the organization. Two factors are:

- hygiene theory,
- motivation.

Both factors are aimed at increasing productivity, reducing the number of absences and achieving harmonious working relationships. All this can - albeit indirectly - affect the behavior of staff in stressful situations. The basic idea of Herzberg is that motivation is the result of personal development and is based on the innate need for development.

The most important human factor in each flight is the crew's decision-making process. Correct decisions will lead to a safe and successful resolution of the task, while bad decisions can lead to disaster. The most important personality for effective decision making is emotional stability and low emotional excitement.

Decisions must be made whenever there is more than one way to reach a conclusion. The selection will depend on:

- the objective to be achieved,
- personal preferences of the decision maker.

The goal of decision making is usually unambiguous, however personal preferences may be affected by a large number of variables. These may include, for example, personalities and personal interests, perceptions, stress, emotions, training, prior experience, motivation, commercial interests, etc. However, it is possible to identify certain common factors that influence decision-making regardless of specific circumstances.

Fortunately, one has a number of capabilities that can be incorporated into the decision making mechanism:

- quick decision - if it is a well-learned and automated case,
- Creativity,
- the ability to innovate,
- Ability to deal with unusual situations.

Man (yet) in these areas overcomes the possibilities of machines. Perhaps it is right now to recall that the captain of the aircraft is ultimately responsible for all decisions made in the cockpit.

The decision is “good”, if it can be done within the time available. In contrast to general belief, it is unusual that in flight the lack of time has forced a very quick (and therefore potentially incorrect) decision. Rapid resolution is, of course, necessary in case of emergencies during take-off, landing, or when flying close to the ground. In most cases, however, the crew has the opportunity to get time in flight. This can be achieved, for example, by:

- the approach of the aircraft is changed to repeat,
- The aircraft may begin to wait and be able to assess and solve the problem,
- take-off may be delayed,
- speed can always be reduced,
- Divergence is almost always an option.

If the pilots assume they will lack time, the only effective solution is to prepare the decision in advance.

Thorough flight preparation and briefing before each risky flight phase provide the best guarantee against making decisions under time pressure.

Considerations of commercial content, such as fuel costs, may cause the pilot to impose time constraints on himself. Such considerations can bring considerable stress to the crew and influence their decision-making.

One aspect of decision making is important and interesting. Sometimes there are only two possible choices - one risky, the other sure. One tends to make their decisions according to whether the problem is formulated as a choice between two gains, two positive options or two losses, two negative options. People tend to act so as to prefer a possible loss of loss to certain, even if the potential loss is much greater than if we had chosen the second option - a loss of certainty.

Consider a pilot who has to choose whether to turn the plane back due to potentially bad weather (if it chooses this option, it is certain that the passengers will be disappointed and may be personal inconveniences for the pilot) or continue (with the possibility that Will safely get through potentially unfavorable weather, but also with the possibility that disaster could occur if weather deteriorates significantly). The choice is, therefore,

two negative results: a certain loss versus an uncertain disaster. Research has shown that people tend to favor a risky option. Many pilots and passengers have already died because of this tendency.

Interestingly, with regard to choosing between two positive outcomes, people prefer security rather than higher, but uncertain earnings.

So if our pilot can make his choice to choose between two positive results (the certainty of saving lives by turning back versus the possibility of disappointing passengers by continuing the flight in the original direction), then he will tend to make the wiser (in this case the first) solution.

The decision process is susceptible to human error and can be limited by external factors.

## IMPORTANCE OF CRM AND LOFT

Line-Oriented Flight Training (LOFT) and Crew Resource Management (CRM) are designed to increase crew performance. The use of video recordings to capture real flight simulations provides good feedback. This allows people to see themselves and, eventually, realize that the way in which they actually present themselves to others can be different from the way they want to present themselves. In this way, the view of them will come closer to the way others see. These exercises can be useful if participants “*play roles*” or behave in a certain way. This may require that the shy second pilot behave assertively. Thus, he realizes that he is able to act assertively, and that most people will be welcoming them when he can clearly communicate their views. It may also be useful to force the captain to actively ask for advice and ideas to other crew members. This clearly demonstrates that this will not be considered a sign of weakness, but it will help to consolidate the team spirit and lead to better decision making.

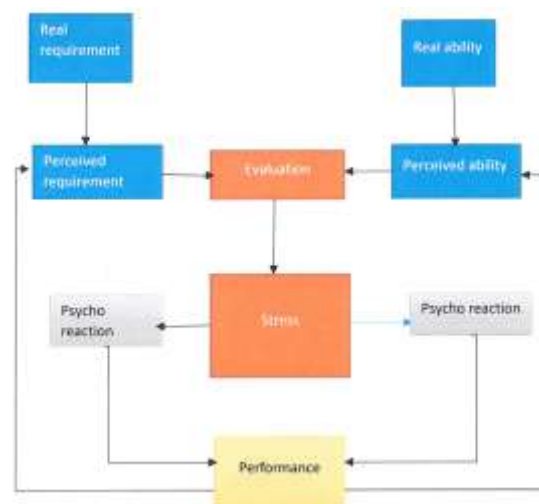


Fig. 4 Model of stress

From the above figure, it is clear that the feedback mechanism is very important for determining the level of stress experienced in fulfilling the task. Successful accomplishment of the task will reduce the perceived difficulty and increase the perceived abilities, thus changing the original evaluation of the task and reducing the stress.

One aspect of stress is that an event causing one high level of stress may not have the same effect on the other. It is also a fact that something that is stressful for one person may not be stressful for him at all.

- Stress management in the cockpit - Everyone should learn independently and gain experience to develop automatic responses that cost a minimum of energy but can strongly help resist stress. A thoroughly professional approach to training will mean a greater range of responses for man and reduce the chance of getting into an unknown situation. Therefore, emphasis must be placed on regular exercises on the simulator where all emergencies can be practiced in a safe environment.

You have to learn from the past and the experience of others. A thorough pre-flight briefing and preparation will make it possible to predict events. The pilot must be ready for all incidents that might potentially occur during the flight.

The Crew Resource Management (CRM) course teaches sharing and assignment techniques to prevent crew members from being overloaded. Emphasis is placed on the effective use of the knowledge of all crew members to increase the range of possible responses in the event of a non-standard situation. To a large extent, this will raise the awareness of all stakeholders about the situation, and the joint effort will allow the emergence of new ideas.

A good atmosphere on board is a great help in a stressful situation, and humor can be an effective antibody to stress.

There are 5 important steps to prevent stress affecting safety:

- Maintain the basic - drive the plane,
  - Accept the situation - do not try to conceal facts or dangers,
  - Use all sources in the crew (group support),
  - The captain (if not disabled) must decide and “give a tone” in the given situation,
  - Never give up - there is always the right solution.
- Stress management outside the flight deck - This is the process by which people learn methods that help manage stress. The success of any stress management will depend on the willingness to recognize the source of your stress and the decision to do something about it. The main difference between stress management and just dealing with stress is that while the other concerns the daily struggle with stressors, stress management is a change in lifestyle. Beneficial techniques can be:
    - Health and fitness programs. Regular physical exercise reduces tension and anxiety and improves fatigue tolerance. Good physical condition improves cognitive function and response times,
    - Relaxation techniques. Meditation, self-hypnosis, yoga, and bio-feedback can all help ease stress. These techniques usually include muscle relaxation. Bio-feedback and some types of yoga allow a person to control heartbeat and blood pressure,
    - Religious practice. Many people can help some form of religious practice to cope with stress, especially some serious life events such as the death of a loved one or some misfortune. There is a danger, however, if a particular faith has a fatalistic nature. The attitude “is in the hands of God” can prevent some people from trying to solve their own problems,
    - Advisory techniques. Many people benefit not only from professional counseling but also from talking with friends or colleagues.

Pilots must demonstrate authority in their work, and self-control may not be too willing to admit they are experiencing stress problems. They are afraid that this admission may be interpreted as a lack of ability or weakness. All pilots should be aware that stress can affect their performance during flight, especially in emergency situations, and should take steps to help them reduce stress if they feel affected.

## CRITICAL EVENTS IN AERONAUTICS

Below is a table showing the most common traumatic (*crisis*) events that a person may be exposed to today. The left part of the table shows individual traumatizing events, i.e. those whose impact is usually limited to a single person or a few people. The right part of the table lists the most common bulk crisis events, that is, such crisis events that have a negative impact on a larger number of people.

Tab. 1 Crisis events

Individual	In bulk, Group
------------	----------------

car crash Sexual assault / abuse Any life-threatening experience robbery Serious bodily injury / abuse Perceiving a serious threat to one's or another's close Psychological abuse Serious injury / death of your own child Suicide of a family member or a coworker homicide Injury or death in the performance of the service of a police officer or other intervening staff Multiple deaths within the community Injury or death of the child Be witnessing any of the individual or social trauma of the above	earthquake hurricane Fire Floods Environmental pollution on a large scale terrorism Traumatic events associated with children's participation Deaths within the community Violent or sexual crimes that are highly publicized Disasters with an impact on the entire community
--	--

Definitions - The concepts of an incident, an air crash, and a serious incident have their exact meaning and are defined by the L13 (Air Accident and Incident Code):

- Incident,
- Airplane accident,
- Serious incident.

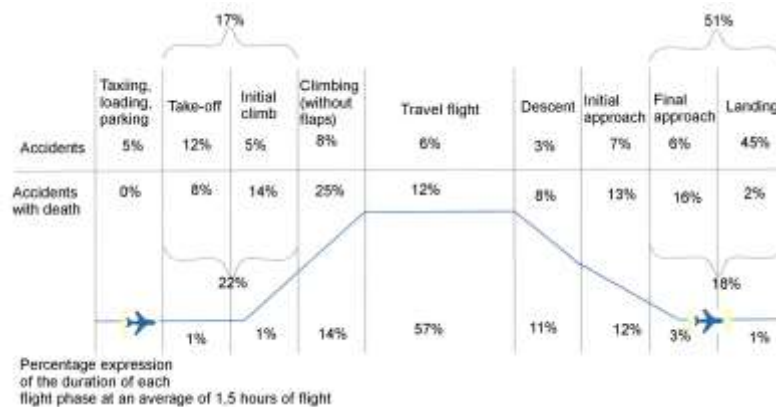


Fig. 5 Accidents with death [34]

### ANALYSIS OF THE IMPACT OF CRISIS SITUATIONS

The crisis or resp. traumatic events, even if they do not suffer any physical injuries, can lead to serious health consequences - such as depression, posttraumatic stress disorder or other pathological mental states. They can make a major difference to both private and professional life. Last but not least, they can be the cause of so-called psychosomatic diseases.

- Posttraumatic stress disorder (PTSP) - This psychiatric disorder appears as a delayed and long-lasting response to a major stress event, or a short or medium-term situation that is exceptionally dangerous or catastrophic, and which would probably cause deep disruption to almost every individual (e.g. natural or man-made disaster, Fighting, serious misfortunes, presence in the violent deaths of others, being victims of torture, terrorism, rape or other crime). Sudden stress from a traumatic event causes chemical reactions in the brain and also has symptoms on the body level.  
 In the past, many people believed that PTSPs could suffer only soldiers or other people who were in war. As a result, PTSP was commonly referred to as “*combat fatigue*” or “*shock*”.  
 Based on new research, however, doctors and scientists have found that all people from different backgrounds may experience traumatic experiences that can sometimes lead to PTSD.  
 Here are examples of situations that may be associated with PTSP:
  - A person who survived a serious car accident starts to shake uncontrollably, experiencing heart pounding and sweating when he hears the siren of the rescue car,



- A man stranded in a dark street - is “*extremely nervous*” and does not leave the house, especially at night,
- People who have been affected by the flood can be troubled by nightmares about floods and have serious sleep problems whenever the weather forecast reports night rain, this woman cannot sleep.

Most available studies provide evidence that women who have been subjected to traumatic events suffer from PTSD up to twice as much as men. One possible explanation for this difference might be that women and men usually experience different types of traumatic events. For example, it is more likely that women may be raped, sexually harassed, neglected by their parents during childhood, abused in childhood ...

Physicians are convinced that women experience a higher incidence of PTSD because the type of traumatic events they experience is usually associated with personal violence, unlike events usually reported by men. Moreover, the traumatic situations experienced by women are often recurring, especially in childhood,

- Depressive disorder - Depression is a mental illness in which a person has a sad mood, which is usually accompanied by anxiety, internal disturbance, thinking and sleeping disorders. Thinking is retarded and addresses the hopelessness of the current situation and the hopelessness of the future.

Many patients experience feelings of guilt and transgression, which can rise to different vices and delusions. Sleep disorder is also common, which causes problems sleeping, sudden awakening or early awakening. Sleep is not enough because it is superficial and the patient is not rested in the morning. The morning is the worst for patients suffering from depression, because that's when they feel extremely bad. In the afternoon, the situation improves and the evening is relatively tolerable.

Depression is a common illness. Up to 30% of the population have at least one depressive episode in a certain period of their lives. It is a disease that is caused by multiple biological causes and causes from the external environment but can be treated,

- Panic disorder - Anxiety has an adaptive function for the organism. Like fear, it is important emotions. They energize the senses, mobilize energy, and help the body to defend itself, run away or avoid when the danger arises. The problem begins where anxiety or fear appears too often, it takes too long, and the intensity is too high for the situation that triggered it or when it occurs in unreasonable situations. In these cases, they usually interfere with the life of the individual. So, mild anxiety and anxiety are completely normal and they are experienced in everyone's life. They are useful and important if they do not get a certain amount of peace. Experiments have shown that with moderate anxiety performance improves. If you are not experiencing anxiety or if anxiety is too high, your performance is decreasing. In connection with aviation, it is possible that anxiety fears from flying - aerophobia will develop in some airliners,

- Burnout - In the seventies, the term burnout (burnout, burnout, burnout) describes a professional failure based on exhaustion caused by rising demands, loss of interest and pleasure, loss of ideals, energy and meaning, negative self-esteem, and negative attitudes towards the profession.

Herbert Freudenberger [8, 9], who defined the syndrome in 1974 as “*founder of the burnout syndrome*”, is the founder of this issue. Some feel fatigue and exhaustion, an inability to shake a feeling of cold, a feeling of physical exhaustion, and a number of physical problems in the second, starting with repeated headaches, breathing difficulties through gastrointestinal difficulties, accompanied by weight loss to insomnia and depression. In brief, this syndrome affects the entire psychosomatic area in various places. These are predominantly physical manifestations.

However, there may be psychological and behavioral symptoms - for example, a person known for his chat is suddenly obscured. There is psychological fatigue, boredom, resignation, but also increased irritability, sharply to unfairly critical attitudes and other changes.

Regarding the pathophysiological mechanisms, it is quite obvious that burnout syndrome is a manifestation of excessive stress. The term stress has become a fashionable word and is used, misused, and very often used improperly. Until the 1930s, this word meant excessive or increased pressure or increased stress in the physical sense, Hans Selye [35], but gave him a new meaning. Stress in the medical sense is the automatic reaction of the body running on the hypothalamus - pituitary - adrenal gland to the threatening stimuli. Threatening stimuli are a stressor, while stress is the process to prepare the organism for attack or escape, and in the next stage for survival in extremely dangerous conditions.

Here is the chance to deliberately assess the stressful situations and give them the degree of seriousness they really have. What brings us to stress? Our excessive desire for social recognition. Unrealistic demands for relations between people. The notion that everything has to go “*like butter*” and make it happen immediately.

Too rapid generalization and a fake creation of the view of “*how things are*”. Selective abstraction: from one detail, an incorrectly created whole. Putting emphasis on things that are not essential. Exaggeration and exaggeration of problems. Black and white thinking of the type: either and/or, there is no other option. Personalization of problems, i.e. their relation to one's own person. The solution “*ad hominem*” (to man), not “*ad rem*” (to the matter).

All these situations can be perceived as the consequences of inaccurate self-assessment and excessive expectations. In this neurotic mechanism, which lies at the root of many other difficulties and disorders than just burnout, we recognize a double error: discovery and grandiosity.

Grandiosity is represented by excessive expectations; We each build our own self-image that is improved and trimmed in some ways compared to reality, at least in the sense of an ideal self, in terms of preserving the psychic balance, which can be expressed by statements like - “I should achieve it and that ... So ... I should be accepted by others so and so ... “. Our fantasies marked by grandiosity allow us to imagine success, recognition, cool coexistence with others. The vast majority of people who come into therapy just for interpersonal conflicts and problems are firmly convinced that doing things would be enough if their partner or co-workers do things differently than they do. These clients are equally unwaveringly convinced that they are basically doing the right thing, only the neighborhood underestimates them, does not want to cooperate, hurts them, manipulates them.

Discretion is a reaction to the failure of one's own practices, the demystification of one's own ideal image, not to a critical degree, but in the sense of self-restraint. A rather exaggerated but illustrative example may be the statement – “When I did not manage to run 100 meters in less than 10 seconds, I do not care for anything”. What has been our grandiose goal above is that it gets deeper into negative values. Desire for recognition and appreciation belongs to natural and healthy mental equipment. The desire for perfection (which some deep psychological schools regard as a defense against the fear of death, meaning – “when I am perfect, death will not come to me” is an incomprehensible fiction. Everyone in our childhood we have commandments - either perfect, be strong, hurry, you have to satisfy others - each of us to a varying degree. For some, such commands represent virtually a dictate, and their failure (and fulfillment) is considered to be a failure.

It is no coincidence that the victims of burnout are primarily people who have plunged into their missions with these imperceptible ideals, excessive expectations, which in the critical analysis will not stand in confrontation with reality. As one current psychological slogan says - If anyone had burned out, he had to burn beforehand, and very intensely. If we light the candle at both ends, we will have more light, but the candle will burn earlier.

Critical self-reflection and realistic set-up of demands on themselves and others is the first preventive measure against possible burnout. How far are we able to make such reflections? Probably not many. When a person does something, they think they are doing what they think, not what they are doing. If I am convinced that I am a kind boss, while literally terrorizing my subordinates, I will rarely come to a different conclusion than to be a kind boss. Feedback from the environment will be perceived as envy, misconduct, or personal attacks. Therefore, psychological and psychiatric psychologists are psychologists and psychiatric psychologists who gain psychological attention from psychological and psychological needs of ill-health patients, but also from staff to help set up a good climate in interpersonal relationships at the workplace. In this assignment, such an expert should firstly teach others to find the right level of self-esteem in relation to the difficulty of tasks - there is no universal recommendation, because the situation is always specific and individual to each.

Stress intensity is also not negligible. In the eighties of the last century, IKEM's stories of stress in nursing work were reversed by the myth that the nursing nurses are most stressed. The opposite was true. In interpreting this fact, we have come to the conclusion that this is due both to their choice, to the fact that they are ranked among the elite (which supports both the cohesion of the group and the cohesion of individuals) and, in our opinion, primarily because their cooperation with surgeons does not play a role patient. There is an “*operating field*” in the hall, and the nurse cooperates only with a doctor and is not squeezed by the mill stones of the doctor's demands on the one hand and patient demands on the other. Interpersonal relationships are so clearer, easier to read and easier to deal with. The most stressed were nurses in operations with chronic, severely ill and often dying patients (nephrology, diabetology). The

reasonable management of the company then allowed nurses with a low threshold of frustration tolerance to switch to a less exposed workplace, which was an effective prevention.

But even when the stress cascade starts and the symptoms of her alarm phase appear, the individual is not completely helpless. It was Lazarus [22, 23, 24] and his coworkers who, in the 1980s, Postulated the concept of coping, which is the way to modulate and influence the next course. By coping, there are a number of procedures that can help alleviate psychosocial pressure and hence its biological consequences. In principle, it can be said that procedures can be divided into ineffective (though with temporary relief) and expedient. Among the ineffectiveness is self-treatment, which, in particular, goes beyond commonly used abusers (caffeine, nicotine, alcohol, light drugs), because a wide range of psych pharmaceuticals, usually leading quickly to addiction, especially anxiolytics or stimulants, are available for this group. The undesirable effects of such self-medication cause further problems and the spiral of spiral is strangled. For many people, anxiolytic is also food, especially sweets and chocolate among them. Stretching into isolation or its active formation by aggressive manifestations is also a destructive process. The result is unproductive self-esteem or self-aggression.

It is helpful to clean up the interpersonal situation and good social contacts, both in the workplace and especially in the family. To achieve these goals, everyone has to start with each other and take a positive attitude towards each other. Transaction analyst founder Eric Bernie [1] postulated the philosophy of his school by saying: "One needs a few calories a day, otherwise he will dry his spinal cord. Graving means not only physical contact, but also acceptance and appreciation of oneself and others on the psychosocial level. We can get sex from others, but especially everyone should be able to caress themselves. It is not a de-embarrassment, it is the fulfillment of real need. Not just now and here, but also in relation to the future.

It is reported that the famous American psychiatrist, H. S. Sullivan [37], moved around after lunch and wondered if his staff had been at lunch. When he found out they were not, because they did not have the time, because they had to worry about the patients, he said, "You tell me this one more time and you have a parachute! Who cannot take care of himself does not guarantee that he will take care of the other"! This sentence should be a teaching for those "*devoted*" who exaggerate with their dedication.

Meeting the basic requirements of mental hygiene, optimizing the relationships between the burden and rest, the most regular lifestyle, and a reasonable amount of body movement is a recommendation for all, but for those in stressful work with three exclamation points.

- Psychosomatic diseases - Psychosomatic disease is any disease arising from the projection of negative emotions into the human body. The source of negative emotions in today's modern civilization is usually chronic overload of the body, we are talking about so-called chronic stress, but hereditary factors can play a significant role in this process. In other words, the patient fails to cope with the problems in his or her surroundings or is unable to cope with various stressful life situations.

Mental anxiety arises as anxiety, depression, sleep disturbances or emotional lability. Then the neurovegetative balance of the organism is disturbed, which means that the balance between the sympathetic (nervous) nervous system and the parasympathetic (damping) nervous system is disrupted.

Consequently, a number of internal organs (heart, lungs, stomach, gall bladder, intestines, kidneys, bladder, etc.) or muscles are disturbed and rarely associated with pain. Distribution of psychosomatic diseases according to the development of the disease:

- The initial phase of the disease (the so-called phase of functional changes) can stop the development of the disease by appropriate treatment (e.g. electro acupuncture, psychotherapy ...),
- There is a malfunction of the organ that cannot be demonstrated by clinical or laboratory tests advanced disease state (so-called stage of organ changes), there is already a significant disruption of organ structure and function.

We already have deviations in clinical condition and in laboratory values. At this stage, the patient's illness cannot be fully cured, it is only possible to alleviate his or her disease-related problems.

### CRISIS INTERVENTION OF CISM

Security measures are still improving, but despite all efforts to prevent disasters and prevent crises, the risk cannot be completely ruled out (natural disasters, terrorist attacks, industrial disasters, traffic accidents, etc.). Therefore, it is essential that there are components capable of giving a psychological "*helping hand*" in

this situation not only to crisis participants, but also to rescue workers who intervene at the scene of the disaster. CISM is an effective and cost-effective tool that has been developed to mitigate the psychological consequences of crisis events.

CISM is a comprehensive, integrated and multi-component system of crisis intervention. The complexity of CISM is that it contains multiple crisis intervention components that functionally include the entire time spectrum of a crisis event. Versatility also consists in applying to individuals, small functional groups, large groups, families, organizations and Even across the community.

CISM is not psychotherapy or substitute for psychotherapy. CISM is a form of psychological first aid. As noted above, CISM is an integrated multi-component crisis intervention system. This system approach underlines the importance of using multiple intervention techniques combined in such a way as to achieve mental stabilization and alleviation of symptoms.

The effectiveness of CISM programs has been empirically confirmed by well thought-through qualitative analyzes, controlled by surveys and meta-analyzes.

In short, none of the CISM intervention techniques are meant to be used alone, even the widely used Critical Incident Stress Debriefing (CISD).

Whilst access to crisis intervention through CISM is still evolving, current investigations have clearly demonstrated its value as a means of reducing human suffering.

- Crisis Management Briefing (CMB),
- Critical Incident Stress Debriefing (CISD).

#### ACKNOWLEDGEMENTS

The article was prepared within the project TA04031376 „Research/development training methodology aerospace specialists L410 UVP - E20“. This project is supported by Technology Agency Czech Republic.

#### REFERENCES

- [1] Bernie, E. *Jak si lidé hrají*, Portál, ISBN 978-80-7367-992-7, Praha, 2011
- [2] Buchtová, B. a kol. *Psychologie pro ekonomy a manažery*, 3. vydání, Grada, Praha, 2012, ISBN 978-80-247-3809-3 (tisková verze), ISBN 978-80-247-7655-2 (elektronická verze ve formátu PDF), (in Czech)
- [3] Charvát, *Život, adaptace a stress*, [Státní zdravotnické nakladatelství](#), Praha, 1969, (in Czech)
- [4] Clegg, B. *Stress management*, Brno, CP Books, 2005, 111 s. ISBN 80-251-0617-9
- [5] Cooper, C. L., Dewe, P. *Stress. A Brief History*, Malden, Blackwell Publishing, 2004
- [6] Folkman, S., Lazarus, R. S. „If It’s Changes, It Must Be a Process: Study of Emotion and Coping During the Three Stages of a College Examination“, *Journal of Personality a Social Psychology*, 48, 1, 1985, pp. 150-170
- [7] Freudenberger H. J. “Crisis Intervention, Individual and Group Counseling, and the Psychology of the Counseling Staff in a Free Clinic”, *Journal of social issues*, Vol. 30, Issue 1, pp. 77-86, New York, January 1974, DOI: 10.1111/j.1540-4560.1974.tb00696.x
- [8] Freudenberger H. J. “Staff Burn-Out”, *Journal of social issues*, Vol. 30, Issue 1, pp. 159-165, New York, January 1974, DOI: 10.1111/j.1540-4560.1974.tb00706.x
- [9] Friedel, J., Peters-Kühlinger, G. *Jak úspěšně zvládnout tlak a stres v práci*, Praha, Grada, 2006, ISBN 80-247-1517-1
- [10] Gilbertová, S., Matoušek, O. *Ergonomie, Optimalizace lidské činnosti*, Praha, Grada, 2002, ISBN 80-247-0226-6, (in Czech)
- [11] Guillet, L., Hermand, D., Mullet, E. „The importance of Social Support in Workers’ Lay Conceptualization of Stress“, *Swiss Journal of Psychology*, 69, 1, 2010, pp. 65-69.
- [12] Háčik, E. *Lidská výkonnost a omezení*, 1. vydání, Brno, Akademické nakladatelství CERM, 2006, ISBN 80-7204-471-0, (in Czech)

- [13] Hansez, I., & De Keyser, V. „Job control in changing work environments“, In F. Avallone, A. Caetano & H. Sinangil (Eds.), *Identity and Diversity in Organizations* (pp. 42-50). Milan, Italy, Guerini Studio, 2003
- [14] Hartl, Hartlová, *Velký psychologický slovník*, Portál, 2010, ISBN 978-80-736-7686-5, s. 555, (in Czech)
- [15] Herzberg, F., Mausner, B., Snyderman, B. B. *The Motivation to Work*, New York, John Wiley, 1959, [ISBN 0-471-37389-3](#)
- [16] Hladký, *Zdravotní aspekty zátěže a stresu*, Karlova Univerzita, Nakladatelství Karolinum, Praha, 1993, ISBN 80-7066-784-2, (in Czech)
- [17] Hladký, *Zdravotní účinky zátěže a stresu*, Praha, 1993, Karlova Univerzita, Nakladatelství Karolinum, (in Czech)
- [18] Karasek, R. A. „Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign“, *Administrative Science Quarterly*, 24, 2, 1979, pp. 285-308.
- [19] Karasek, R., Theorell, T. *Healthy work: Stress, productivity and the reconstruction of working life*, New York, Basic Books, 1990
- [20] Křivohlavý, J. *Psychologie nemoci*, 2002, Praha, Grada, ISBN 80-247-0179-0, (in Czech)
- [21] Křivohlavý, J. *Psychologie zdraví*, Praha, Portál, 2003, s. 170, ISBN 80-717-8774-4, (in Czech)
- [22] Lazarus, R. S. *Stress and Emotion. A New Synthesis*. New York, Springer Publishing Company, 1999
- [23] Lazarus, R. S., DeLongis, A., Folkman, S. Gruen, R. „Stress and Adaptational Outcomes. The Problem of Confounded Measures“, *American Psychologist*, 40, 7, 1985, pp. 770-779
- [24] Lazarus, R. S., Folkman, S. *Stress Appraisal and Coping*. New York, Springer Publishing Company, 1984
- [25] Mackay, c. J., Cooper, C. L. „Occupational Stress and Health: Some Current Issues“, In Cooper, C. L., Robertson, R. Eds., 1987, *International Review of Industrial and organisational Psychology*, Chichester, UK, Wiley
- [26] Maslow, A. H. “A theory of human motivation”, *Psychological review*, 50(4), 1943, pp. 370 – 396
- [27] Meier, L. L., Semmer, N. K., Elfering. A., Jacobshagen, N. „The Double Meaning of Control: Three-Way Interactions Between Internal Resources, Job Control, and Stressors at Work“, *Journal of Occupational Health Psychology*, 13, 3, 2008, pp. 244-258
- [28] Mikšík, O. *Psychická integrita osobnosti*, Univerzita Karlova Praha, 1985, 290 pp.
- [29] Nakonečný, *Sociální psychologie*, 2009, Academia, Praha, ISBN 978-80-200-1679-9, (in Czech)
- [30] Parkes, K. R. „Coping in Stressful Episodes: The Role of Individual Differences, Environmental Factors, and Situational Characteristics“, *Journal of Personality and Social Psychology*, 51, 6, 1984, pp. 1277 – 1292
- [31] Pauknerová, D. a kol. *Psychologie pro ekonomy a manažery*, 2. přepracované a aktualizované vyd. Praha, Grada, 2006, 254 s. ISBN 80-247-1706-9, (in Czech)
- [32] Pospíšilová, J. „Stres u vojenského leteckého personálu vrtulníkové základny“, *Diploma work*, Univerzita Palackého v Olomouci, Filozofická fakulta, Olomouc, 2014, (in Czech)
- [33] Praško, *Úzkostné poruchy - Klasifikace, diagnostika a léčba*, 2005, ISBN 80-717-8997-6, (in Czech)
- [34] Schuler, R. S. „An integrative transactional process model of stress in organizations“, *Journal of Organizational Behaviour*, 3, 1, 1982, pp. 5-19
- [35] Selye, H. *Život a stres*, Bratislava, Obzor, 1966
- [36] Siegrist, J. „Adverse Health Effects of High-Effort/Low-Reward Conditions“, *Journal of Occupational Health Psychology*, 1, 1, 1996, pp. 27-41
- [34] Statistical Summary of Commercial Jet Airplane Accidents, *Boeing*
- [35] Sternberg, *Kognitivní psychologie*, Portál, Praha, ISBN 80-7178-376-5, 2002, s. 587, (in Czech)
- [37] Sullivan, H. S. *The Interpersonal Theory of Psychiatry*, Tavistock, New York, 1953, ISBN 978-415-26477-8
- [38] Šulc, J. *Učebnica Pilota 2008 - Letecká Psychofyziologie*, 1. vydanie, Cheb, Svět křídel, 2008, ISBN 978-80-868-0846-8, (in Czech)
- [39] Večeřová-Procházková, A., Honzák, R. *Stres, Eustres a Distres*, 2008, [www.Solen.Cz/Savepdfs/Int/2008/04/09.Pdf](http://www.Solen.Cz/Savepdfs/Int/2008/04/09.Pdf), (in Czech)
- [40] Velínská, Š. „Diagnostika stresu v pracovním prostředí“, *Diploma work*, Masarykova Univerzita V Brně, Brno, 2011, Fakulta Sociálních Studií, (in Czech)

- [41] Volner, R. „Based Analysis Of Interaction Between Human Subject And Artificial System - Impacts Of Driver Attention Failures On Transport Reliability And Safety”, *Perner's Contacts - Elektronický odborný časopis*, pp. 404-410, 3/2011, ročník 6, Univerzita Pardubice, ISSN 1801 – 674X, str. 410
- [42] Volner, R., Hubková S. „Biomedical Smart System and Health Problems for Pilot“, *International Journal of Trend in Research and Development*, Vol. 3, Issue 2, 2016, pp. 531-533, ISSN 2394-9333 (in English),
- [43] Volner, R., Hubková, S. „HCI – aplikácia v leteckej doprave“, *Mezinárodní konference Aplikace simulátorů ve výchově leteckých specialistů*, 2016, Mošnov, str. 236-249, ISBN 978-80-270-0053-1, 410 str., (in Slovak)
- [44] Volner, R., Hubková, S. „HCI v simulátorových systémech“, *Mezinárodní konference Aplikace simulátorů ve výchově leteckých specialistů*, 2015, Mošnov, str. 210-221, ISBN 978-80-260-8337-5, 233 str., (in Slovak)
- [45] Volner, R., Martinec, F., Černák, I. „HCI in Personal Health Information Management“, *Proceedings of the ITI 2012 34<sup>th</sup> International Conference on Information Technology Interfaces*, ITI 2012, Cavtat/Dubrovnik, Croatia, June 2012, **A4**, ISBN 978-953-7138-25-7, ISSN 1334-2762, [IEEE](#) Catalog Number CFP12498-CDR
- [46] Volner, R., Smrž, V. „Security and Crisis Management for Air Transport“, *Perner's Contacts - Elektronický odborný časopis*, pp. 142 - 154, Srpen 2009, Univerzita Pardubice, ISSN 1801 – 674X,
- [47] Volner, R., Smrž, V. „Security and Crisis Management for Air Transport“, *Proceedings 42<sup>nd</sup> Annual 2008 International Carnahan Conference on Security Technology*, October 2008 Prague, Czech Republic, pp. 292-298, IEEE Catalog Number CFP08ICR-PRT , ISBN 978-1-4244-1816 - 9, (in English), [50%],
- [48] Volner, R., Smrž, V. „Security and Risk Management for Air Transport“, *Proceedings 43<sup>rd</sup> Annual 2009 International Carnahan Conference on Security Technology*, October 2009 Zurich, Switzerland, pp. 268-271, IEEE Catalog Number CFP091CR-PRT , ISBN 978-1-4244-4169-3, (in English), [50%],
- [49] Volner, R., Volner, E. „Information Security Risk Management for Air Transport“, *Proceedings 45<sup>th</sup> Annual 2011 International Carnahan Conference on Security Technology*, October 2011 Barcelona, Spain, pp. 99 - 101, IEEE Catalog Number CFP11ICR-PRT, ISBN 978-1-4577-0901-2, ISSN 1071-6572, pp. 354
- [50] Vošahlík, K. „Stres a jeho vliv na pracovní výkon“, *Bachelor work*, Masarykova Univerzita, Ekonomicko-Správní Fakulta, Brno, 2009, (in Czech)
- [51] Xanthopoulou, D., Bakker, A. B., Demerouti, E., Schaufeli, W. B. „The Role of Personal Resources in the Job Demands-Resources Model“, *International Journal of Stress Management*, 14, 2, 2007, pp. 121-141