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The determinants of the development of professional distortions in medical personnel, teachers, and psychologists working in an industrial-disaster zone

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This article presents research results regarding the determinants and individual predictors of professional distortions in the medical personnel, teachers, and psychologists who were involved in long-term programs of human relief assistance after a catastrophic accident at the Sayano-Shushenskaya hydroelectric power station. The research aim was to analyze the factors influencing the increase in and the accumulation of occupational stress in the groups investigated. The stress studied was caused by strong emotional tension in 3 months of intensive work after the accident. The extraordinary situation served as a challenge, a kind of "strength test" for individual adaptation, which led to the manifestation of extreme adaptation options (destructive and constructive forms) and allowed us to clarify the factors that contributed to their development. The research showed that, in this situation, psychological (in particular, emotional) resources and individual coping characteristics played a determinative role in professional adaptation.

Keywords: occupational stress, coping behavior, emotional intelligence, individual predictors, professional distortions, stress management

Studies of personal adaptation to dynamic work conditions and job content form one of the most important domains in work and organizational psychology. Contemporary base-line research is targeted to reveal the factors that contribute to effective work, unimpaired health, and well-being. In this domain the studies of various professional disadaptations and the elaboration of psychological support programs are growing rapidly (Bodrov, 2006; Cooper, Dewe, & O'Driscol, 2001; Kasl, 1978; Leonova, 1996, 2003).

Many of the studies are devoted to manifestations of stress and the development of professional distortions in socionomic occupations (Leonova & Bagryi, 2009; Leonova & Kachina, 2006; Mitina, 1998; Velichkovskaya, 2004; Vodopianova & Starchenkova, 2009; Yasko, 2005). The identifying features of such occupations

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are the following: the peculiarities of the job context require not only a high level of mastery and work quality but also special personality traits: eagerness to maintain excellent psychological stability, to prevent chronic stress, and to minimize the risks of distortions (such as burnout syndrome), including chronic fatigue, neuroses, and stress-related diseases.

In the socionomic domain disadaptation predictors can be subdivided into two types: external (job content and work, organizational and socioeconomic conditions) and internal (individual characteristics, work motivation and values, job satisfaction, work experience, and competence level) (Velichkovskaya, 2004; Yasko, 2005). A number of studies focus on coping behavior—namely, the types of coping strategies (Vodopianova & Starchenkova, 2003). Some researchers investigate components of emotional intelligence as one of the coping resources on the personality level (Khazova & Vershinina, 2010; Lusin, 2004; Ryajeva, 2010). Emotional intelligence, defined as the ability to understand, to differentiate, and to control self-emotions and the emotions of others (Mayer & Salovey, 1993), is a work-specific characteristic that is required in socionomic occupations.

In spite of a broad range of investigations targeted at revealing the psychological resources needed for successful professional development, the problem of adaptation to the demands of extreme/difficult work situations is on the agenda. Work efficiency and the internal costs of task execution are the main indicators of the potential for adequate professional actualization. Efficient work ensures a high level of functioning and health maintenance in the nurturing professions in critical environments.

Description of the research project

This article presents the results of research focused on discovering the determinants and individual predictors of professional distortions in medical personnel, teachers, and psychologists working under tense conditions. Participants in the study were involved in long-term programs of human relief assistance after a catastrophic accident at the Sayano-Shushenskaya hydroelectric power station. The large-scale accident took place on August, 17, 2009; 75 employees died. At the time of the study the specialists had worked in conditions of emotional tension and high workload for over 2.5 months.

First stage

The investigation consisted of two stages. In the first stage a diagnostic and training program was held for the group of psychologists. The psychologists were engaged in long-term programs of psychological assistance to the victims. There were 15 psychologists, 14 women and 1 man; the average age was 35; average work experience was 10 years. Two months after the accident the psychologists' workload rapidly increased because of the high number of calls for psychological help. At the time of the research the psychologists were working in nearly extreme conditions. It became obvious that the accumulation of fatigue and emotional tension increased the risk of developing chronic fatigue, which is a predictor of possible professional distortions. At the same time, thanks to the high rate of work engage-

ment and the positive emotions related to work results, the psychologists did not consider the high workload a serious hazard.

The implementation of psychological procedures targeted to recovery of the human functional state (HFS) became urgent as a kind of "psychological assistance" to the psychologists themselves. This work was done within a training course designed to provide the psychologists with the means for acquiring psychological self-regulation (Leonova, Kuznetsova, Kachina, & Zlokazova, 2012).

The aims of the training course were (1) to elicit psychological means for effective, goal-oriented self-regulation that met the standards for efficient work, and (2) to train psychologists in the sufficient use of these means.

In group discussion the typical indicators of HFS dynamics in highly tense work were elicited. The internal parameters of nonoptimal (destructive) HFS were clarified, and seven criteria for a goal-oriented HFS (a state meeting the requirements of the work conditions and tasks) were accepted as the inner markers for self-regulation (see Figure 1). As the list of markers was fixed and accepted, every training participant created his/her own set of self-regulation formulas for adequate HFS when working under tense conditions.

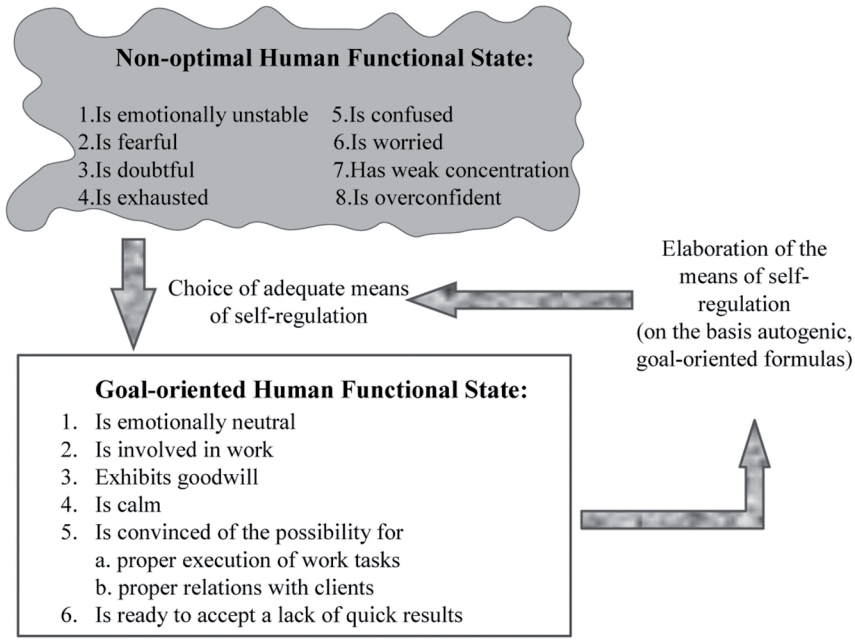


Figure 1. Elaboration of goal-oriented HFS optimal for psychological work with the victims.

Previously published empirical data highlighted the strong, multilevel effects of the positive HFS dynamics that resulted from the training course (Leonova, Kuznetsova, Kachina, & Zlokazova, 2012). The self-reports showed that new means for the internal recovery of self-regulation were successfully acquired by the psychologists.

At the end of the training course a final discussion was held. The psychologists accepted the fact that they scheduled insufficient time for rest and recreation. They considered it obvious that the high work intensity and the lack of rest led to fatigue and emotional tension. The worthwhile, intensive work, carried out upon "first request," step by step adversely affected the adaptation potential of the psychologists. The participants stressed that reflexive analysis of their fatigue level was helpful in understanding that a strong motivation for success at work cannot fully compensate for the consumption of inner resources. They accepted the necessity for recreation and thought it should be viewed as the first stage of self-care, targeted to preserve health, to increase professional success, and to decrease the risk of professional deformations.

Second stage

The second stage of the research included diagnostics in the groups of medical personnel and teachers. For both groups, the deaths of so many people and the loss of feelings of safety and stability made work highly difficult. Consequently, the probability of new and/or escalating maladaptive forms of response increased.

The extraordinary situation appeared as a challenge, a kind of "strength test" for individual adaptation. This challenge led to the manifestation of extreme adaptation options (destructive or constructive forms) and allowed us to clarify the factors that contributed to their development. The variety of adaptation options was reflected in different degrees and kinds of occupational-stress syndromes (Leonova, 1996, 2007). It can be assumed that psychological resources (in particular, emotional intelligence) and individual peculiarities of coping played a determinative role in providing professional adaptation.

The investigated groups (both medical personnel and teachers) had no proper knowledge for providing sufficient psychological help to the victims, and, as well, they didn't possess any special self-regulation skills for working under tense conditions. For this reason, we suggest that some psychological characteristics (above all, emotional-personality characteristics) and typical coping behavior played a key role in successful adaption to extraordinary situations.

Goal

The research aim was to analyze the factors that led to the increase in and accumulation of occupational stress in the groups of medical personnel and teachers. These factors caused strong emotional tension in the 2.5 months of intensive work after the accident.

Tasks

The research tasks were formulated as follows:

1. To evaluate the dominant components in the occupational-stress syndrome and to reveal the high-risk zones for a loss of health and well-being and a decrease in work efficiency in the investigated occupational groups
2. To determine the specific coping strategies of professionals with different levels of occupational stress

3. To determine the role of emotional intelligence and different coping strategies in predicting health disorders and decreases in work efficiency (risk of chronic stress, burnout syndrome, and other distortions) in the investigated occupational groups

Sample

The sample of medical personnel and teachers consisted of 117 people:

- 40 doctors and nurses working with victims and their family members in the ambulatory-care clinic, as well as with employees engaged in the reconstruction work at the power station (38 women, 2 men; average age, 46; average work experience, 25 years)
- 77 school and preschool teachers (75 women, 2 men; average age, 43.5; average work experience, 23.7 years).

Methods

The diagnostic set of assessment methods had the following components (see Table 1):

Table 1. Diagnostic Indicators

IDIKS scales	**Strategic Approach to Coping Scales (SACS) questionnaire**
TV1. Risk factors and objective job constraints (4 subscales) TV2. Subjective appraisal of job difficulties (4 subscales) TV3. Job rewards and administration (4 subscales) TV4. Acute-stress manifestations (6 subscales) TV5. Chronic-stress manifestations (6 subscales) TV6. Personality and behavioral deteriorations TV0. General stress index (summarizing score of indexes of main scales calculated by regression model) Lie scale	1. Assertive actions 2. Social joining 3. Seeking social support 4. Cautious actions 5. Instinctive actions 6. Avoidance 7. Manipulative actions 8. Asocial actions 9. Aggressive actions
Emotional Intelligence Questionnaire	
1. Self-awareness 2. Self-management 3. Social awareness 4. Relationship management General indicator of EI	

- The Managerial Stress Survey (IDIKS) (Leonova, 2006) was the main instrument for detailed evaluation and analysis of manifestations of occupational stress.

- The Strategic Approach to Coping Scales (SACS) questionnaire by S. Hobfoll, adapted version (Vodopianova & Starchenkova, 2003), was used for assessing typical coping strategies and coping-behavior models.
- The Emotional Intelligence Questionnaire (Manoilova, 2007) was used for evaluating the ability to identify, assess, and control the emotions of oneself and others.

Results

1. *Stress syndrome in medical personnel and teachers*

IDIKS data showed a high level of perceived stress for both groups of participants (see Table 2). In addition correlation of the data revealed significant similarities in their IDIKS profiles. The value of the lie scale index is in the range of norms, which testifies to the reliability of the collected results.

Table 2. IDIKS Descriptive Statistics for Medical Personnel (n=40) and Teachers (n =77)

Indices	Medical personnel		Teachers	
	Mean (σ^2)	Stress level	Mean (σ^2)	Stress level
TV1. Risk factors and objective job constraints	44.14 (9.39)	Moderate	46.30 (11.83)	Moderate/ Expressed
TV2. Subjective appraisal of job difficulties	60.6 (7.86)	High	56.96 (6.85)	High
TV3. Job rewards and administration	50.62 (6.20)	Expressed	51.61 (7.13)	Expressed
TV4. Acute-stress manifestations	55.90 (9.33)	High	56.20 (10.27)	High
TV5. Chronic-stress manifestations	59.70 (9.20)	High	60.36 (9.77)	High
TV6. Personality and behavioral deteriorations	52.79 (8.01)	Expressed	53.63 (8.13)	Expressed
TV0. General stress index	56.30 (7.78)	High	56.63 (8.26)	High

The main stressors for both groups of participants were as follows:

- *Low autonomy* (TV2.4. — high/extremely high stress level): (a) in the medical personnel: the strict control and regulation of treatment, conflict between the regulations and the real performance conditions; (b) in the teachers: impossibility of being spontaneous and taking initiative at work, need to strictly follow the prescribed rules and regulations
- *Low task variety* (TV2.1. — high stress level): (a) in the medical personnel: monotony, prevalence of single-type tasks, impossibility of applying new treatment tools and methods; (b) in the teachers: daily routine and frequent repetitions of the same tasks
- *Low task identity* (TV2.2. — high stress level): in both groups: prevalence of simple and familiar tasks, lack of demand for innovation

- *Low job rewards* (TV3.2. — high stress level): in both groups: low rewards, lack of approval and encouragement for achieving success, no prospects for further development and career growth
- *Poor feedback* (TV3.3. — high stress level): in both groups: shortage of information about performance quality, lack of capacity to monitor work results

The pattern of stress factors displays strong dissatisfaction with the content of professional activities. Current tasks were perceived as simple and stereotypical, and the work was perceived as tightly regulated. Both the medical staff and the teachers felt a lack of support from organizational leadership. This negative evaluation of their own work, as well as the limited prospects for further development, could have been exacerbated given the background of the strong negative emotional experience in the preceding months. It might also have been caused by a feeling of "self-incompetence," arising from lack of the ability to provide psychological assistance to the victims and their relatives. As a result, the range of stress factors provoked a variety of negative, acute, and chronic manifestations of stress and of the personality and behavioral deteriorations that are the long-term effects of stress.

The actual state of the participants was characterized by manifestations of strong, acute stress:

- actual well-being (TV4.6 — extremely high stress level)
- disturbances in behavior (TV4.5 — high stress level)

The most frequently reported negative symptoms are typical signs of psychological exhaustion: low spirits, asthenia, cognitive tension, and a lack of desire to do anything. These symptoms indicate not only reduced efficiency but also the steady depletion of adaptation resources, which is perhaps the reason for the development of the chronic form of stress. Chronic-stress manifestations in teachers and medical personnel included:

- *anxiety* (TV5.1 — high stress level): constant agitation, worrying about the future, lack of self-confidence
- *depression* (TV5.3 — high stress level): feeling hopeless, loss of meaning and sense of prospective in life, fatalism, constant depressed mood and anguish
- *chronic fatigue* (TV5.4 — high stress level): rapid fatiguability, feeling jaded and worn-out, having difficulty completing simple work tasks
- *psychosomatic reactions* (TV5.5 — high stress level): frequent severe headaches, waves of nausea and giddiness, difficulty breathing, spasms in the stomach
- *sleep disturbances* (TV5.6 — high stress level): insomnia, fragile or troubled sleep, excessive daytime sleepiness

Permanent destructive stress effects were manifested in personality and behavioral deteriorations connected, mainly, with the development of the following:

- burnout syndrome (TV6.2 — high stress level)
- neurotic reactions (TV6.3. — high stress level)

Table 3. Groups at High Risk for Intense Stress Development

Stress level	Interpretation	% (number)
Expressed	The stress level is beyond allowable. It represents a potential threat for functioning and psychological well-being. Should be engaged in psychological support programs.	Medical personnel: 37.5% (15 people) Teachers: 39% (30 people)
High	Activity and health risk. Psychological help required to reduce the stress.	Medical personnel: 50% (20 people) Teachers: 48% (37 people)
Extremely high	High probability of failure and mental breakdown. Need a rehabilitation course.	Medical personnel: 12.5% (5 people) Teachers: 13% (10 people)

In this case a "classic" way of developing burnout syndrome is clearly established–from the loss of important components in the structure of professional-personal competence to the final, persistent neurosis (M. Burish, cited by Velichkovskaya, 2004).

According to these results, we can conclude that there are two groups of symptoms that require psychological correction: (1) intense psychophysiological exhaustion, which significantly restricts the ability to maintain efficiency and adequate functioning; (2) a complex of disturbing-depressive feelings that distort self-perception and a person's attitude toward the world.

2. Changes in the structure of occupational-stress syndrome and of coping behavior in proportion to the increase in the general stress level

To analyze the basic patterns in stress-syndrome development and its negative outcomes, subgroups at different stress levels were assigned (in compliance with TV0 index norms).

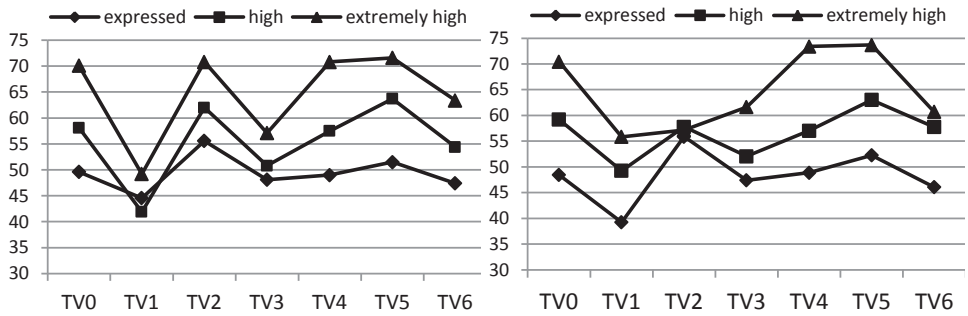


Figure 2. Stress profiles for risk groups. Indices: TV0 — general stress index; TV1 — risk factors and objective job constraints; TV2 — subjective appraisal of job difficulties; TV3 — job rewards and administration; TV4 — acute stress; TV5 — chronic stress; TV6 — personality and behavioral deteriorations.

As can be seen, about two-thirds of each of the subgroups (62.5% of the medical personnel and 61% of the teachers) had high and extremely high stress levels. They were not just in the risk zone; they faced a real threat of activity disruptions and health breaches (see Figure 2 and Tables 4 and 5).

In the group of medical staff the stress profile did not undergo significant changes as the general stress index increased. There was a homogeneous intensification of all negative stress outcomes (all the main scale indices rose; see Figure 2A and Table 4). This pattern testifies to the intensification of negative emotional experience as well as to the manifestation of more expressive destructive stress: symptoms of acute stress reliably increased ($p < 0.001$); long-lasting fixing of the indications of chronic stress existed ($p < 0.001$); manifestations of general neurosis and burnout increased ($p < 0.01$).

Table 4. Significant Differences in the IDIKS Indices of the High-Risk Subgroups of Medical Personnel

Indices	Group 1 Expressed Mean (σ^2)	Group 2 High Mean (σ^2)	Group 3 Extremely high Mean (σ^2)	$\chi 2$ Mean (σ^2)
TV0. General stress index	49.60 (3.26)	58.11 (2.77)	70.11 (4.53)	32.93 (0.00)
TV 1. Risk factors and objective job constraints	42.12 (9.04)	44.50 (8.59)	48.76 (13.42)	17.59 (0.00)
TV2. Subjective appraisal of job difficulties	55.58 (5.64)	62.00 (5.43)	70.84 (8.17)	16.18 (0.00)
TV3. Job rewards and administration	48.14 (5.00)	50.79 (4.42)	57.15 (9.19)	5.93 (0.05)
TV4. Acute-stress manifestations	48.98 (3.91)	57.52 (5.95)	70.88 (8.61)	26.14 (0.00)
TV5. Chronic-stress manifestations	51.50 (4.24)	63.69 (5.66)	71.57 (6.93)	27.88 (0.00)
TV6. Personality and behavioral deteriorations	47.37 (5.98)	53.44 (5.08)	63.42 (7.65)	17.47 (0.00)

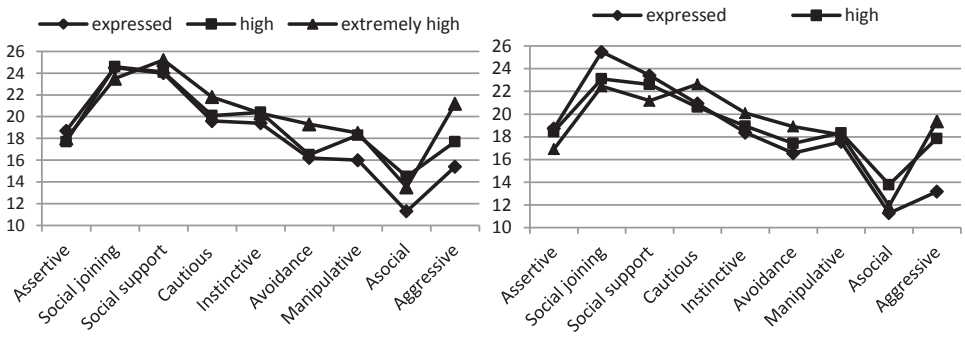
In the teachers the pattern of stress manifestation was different (see Figure 2B and Table 5). The central factor of the stress syndrome (with the same high magnitude in all three subgroups) was the subjective appraisal of job difficulties. However, this initial negative mental representation of the work was not necessarily related to the high level of stress in all subgroups. Thus in the "expressed" subgroup all other indicators were in the moderate range; these individuals were adapting to professional problems.

In the subgroups with high and extremely high stress levels there was a stable increase of negative symptoms, especially in manifestations of acute and chronic stress ($p < 0.001$), and, consequently, personality and behavioral deteriorations strengthened ($p < 0.01$).

Table 5. Significant Differences in the IDIKS Indices of the High-Risk Subgroups of Teachers

Indices	Group 1 Expressed Mean (σ^2)	Group 2 High Mean (σ^2)	Group 3 Extremely high Mean (σ^2)	χ^2 Mean (σ^2)
TV0. General stress index	48.45 (3.33)	59.36 (3.16)	71.01 (4.08)	62.93 (0.00)
TV 1. Risk factors and objective job constraints	39.24 (8.63)	49.77 (11.78)	54.62 (9.67)	18.65 (0.00)
TV2. Subjective appraisal of job difficulties	55.87 (6.81)	57.54 (7.17)	58.06 (5.84)	1.55 (0.46)
TV3. Job rewards and administration	47.39 (4.05)	52.33 (5.93)	61.56 (8.01)	24.46 (0.00)
TV4. Acute-stress manifestations	48.87 (3.75)	57.01 (6.36)	75.13 (10.17)	45.66 (0.00)
TV5. Chronic-stress manifestations	52.36 (6.24)	63.11 (6.77)	74.46 (5.09)	44.40 (0.00)
TV6. Personality and behavioral deteriorations	46.07 (4.63)	57.95 (5.67)	60.28 (6.61)	44.88 (0.00)

The high-risk subgroups in both contingents differed not only in the scale of the negative stress experience and its destructive effects but also in the patterns of coping strategies (Figure 3). The predominance of prosocial and direct coping models is typical for medical personnel in general. The medical personnel in the study mostly used social joining (mean = 24.38, $\sigma^2 = 2.94$), social support seeking (mean = 24.23, $\sigma^2 = 3.83$), and instinctive actions (mean = 19.97, $\sigma^2 = 2.92$) to cope with stress. The magnitudes of these indicators were at the border of the medium and high ranges, and their levels should draw attention to the relatively low level of assertive actions (mean = 18.15, $\sigma^2 = 2.20$).



A. Medical personnel **B. Teachers**

Figure 3. Coping strategies in high-risk groups.

However the repertoire of coping strategies was transformed when the general stress index increased (see Figure 3A). Significant differences were identified among the subgroups in the frequency of asocial ($\chi 2 = 6.59$, $p < 0.05$) and aggressive ($\chi 2 = 7.11$, $p < 0.02$) actions. Frequent asocial coping behavior decreases the

adequacy of professional behavior, in which positive forms of social interactions with patients and colleagues are expected.

A rather wide range of coping strategies characterized the group of teachers. Most often they used instinctive actions (mean = 18.89, $\sigma^2 = 3.10$) and avoidance (mean = 17.31, $\sigma^2 = 3.83$) to cope with stress, and they also regularly used social joining (mean = 23.93, $\sigma^2 = 7.54$) and social support seeking (mean = 22.72, $\sigma^2 = 4.71$).

As in the case of the medical personnel, as the stress level increased, teachers more often used asocial and passive coping models (see Figure 3B). The higher the stress level, the more the teachers tended to use socially nonsanctioned coping strategies: aggressive ($\chi 2 = 17.31$, $p < 0.001$) and asocial ($\chi 2 = 5.68$, $p = 0.05$) actions. In addition they started actively resorting to passive coping strategies: cautious ($\chi 2 = 5.12$, $p < 0.08$) and avoidance ($\chi 2 = 4.74$, $p < 0.09$) actions.

Teachers with high and extremely high stress levels (as well as medical staff) began to use coping strategies aimed mainly as fast affective discharge (aggressive actions) and a kind of "devaluation" of the interests of others in order to use them as a means to achieve goals (asocial actions). Apparently, this trend was caused by the insufficient development of interpersonal communication and conflict-management skills. In addition we can assume that the coping strategy of getting out of a difficult situation became one of the typical forms of behavior in the teachers when they were unable to cope with increasing stress.

3. Characteristics of emotional intelligence (EI) in professionals with different stress levels

The type of coping strategies used in the subgroups with a high level of stress shows the deficiency of those resources that ensure emotional and personal regulation of job activity. That fact indicates the need for a detailed analysis of relevant integrative personality qualities, including emotional intelligence (EI).

Table 6. Descriptive Statistics on EI Indicators for Medical Personnel and Teachers

Indicators	Medical personnel	Teachers
	Mean (σ^2)	Mean (σ^2)
General indicator of EI level	6.22 (2.09)	6.35 (1.70)
Self-awareness	4.51 (2.41)	4.32 (1.92)
Self-management	8.24 (1.51)	8.08 (1.42)
Social awareness	4.51 (2.40)	4.53 (2.04)
Relationship management	5.51 (1.90)	5.77 (1.49)

The characteristics of EI for each of the professional groups were analyzed (see Table 6). The degree of EI in both the medical personnel and the teachers was rather high. No statistically significant differences between the groups on the separate components of EI were revealed. High scores on the self-management scale and lower scores on the relationship-management scale characterized each of the groups. But the awareness skill, on both the self-awareness and the social-awareness scales, was developed considerably worse: the scores were on the border between the low and medium ranges.

A. Medical personnel **B. Teachers**

Figure 4. EI indicators in high-risk groups.

In the medical personnel, statistically significant differences among scores on both the general indicator of EI and the components of EI were revealed by comparing subgroups with different levels of stress (see Figure 4A and Table 7). The scores of EI gradually decreased in the groups with high and extremely high stress levels. This tendency can be seen clearly in the scores on the general indicator of EI ($p < 0.05$) and on the awareness scales ($p < 0.01$). In addition, there were contradictory dynamics in EI indicators in the subgroup with an extremely high stress level. They had very low scores on both of the awareness scales and very high scores on both of the management scales at the same time.

Table 7. Significance of Differences on EI Indicators in the High-Risk Subgroups of Medical Personnel (n =40)

Indicators	Group 1 Expressed Mean (σ^2)	Group 2 High Mean (σ^2)	Group 3 Extremely high Mean (σ^2)	χ^2 Mean (σ^2)
General indicator of EI level	7.06 (1.90)	6.15 (2.08)	4.40 (1.51)	6.46 (0.04)
Self-awareness	5.80 (2.33)	4.25 (2.09)	2.20 (1.78)	8.95 (0.01)
Self-management	9.00 (1.06)	7.95 (1.57)	7.60 (1.67)	5.27 (0.07)
Social awareness	5.13 (2.38)	4.80 (2.26)	1.60 (0.89)	9.47 (0.01)
Relationship management	5.20 (1.61)	5.70 (2.07)	6.20 (1.92)	1.08 (0.58)

For the teachers the difference between the EI scores of the high-risk subgroups was not that huge (see Figure 4B and Table 8). Significant differences were revealed only on the self-awareness scale ($\chi 2 = 7.25$, $p < 0.03$). This result reflects a special feature of the teachers' group in general—a not very clear awareness of feelings and emotions on both the self-awareness and the social-awareness scales. But at the same time they had quite high scores on relationship management and self-management, which is probably a sign of a special professional deformation (the so-called authoritarian-indicative type).

Obtained data about the existence of valid differences among subgroups with different stress levels, as well as about alterations of the leading models of coping behavior, raise the question of the exact reason for such differentiation. Consid-

ering the fact that individual peculiarities are relatively constant personal formations that develop in the process of gaining professional and life experience (Mayer & Salovey, 1993; Mitina, 1998; Zeer, 2006), a supposition can be made that they can actually play the role of initiators or predictors of destructive forms of stress. The testing of this supposition was carried out during the final stage of data analysis.

Table 8. Significance of Differences on EI Indicators in the High-Risk Subgroups of Teachers (n =77)

Indicators	Group 1 Expressed Mean (σ^2)	Group 2 High Mean (σ^2)	Group 3 Extremely high Mean (σ^2)	χ^2 Mean (σ^2)
General indicator of EI level	6.76 (1.79)	6.14 (1.61)	5.66 (1.73)	3.13 (0.21)
1. Self-awareness	4.96 (1.90)	4.00 (1.85)	3.11 (1.27)	7.25 (0.03)
2. Self-management	8.26 (1.31)	7.97 (1.52)	7.66 (1.50)	1.33 (0.52)
3. Social awareness	4.90 (2.06)	4.45 (2.03)	4.11 (2.09)	0.87 (0.65)
4. Relationship management	5.90 (1.56)	5.54 (1.27)	6.11 (2.20)	0.74 (0.69)

4. Analysis of individual predictors of chronic stress and for the development of professional distortions

To define individual characteristics that may be regarded as predictors of intensive chronic stress and the development of professional distortions, a regression analysis was used (step-by-step regression method):

- *independent variables*: (a) the components of emotional intelligence and (b) the indicators of coping strategies where significant differences among the subgroups were found
- *dependent variables:* indices of chronic stress and personal and behavioral deterioration

The regression analysis was run for each of the dependent variables, separately for the groups of medical personnel and teachers (see Tables 9 and 10). The intensity of the accumulation of chronic-stress symptoms reliably depended on the "self-oriented" components of emotional intelligence and maladaptive coping strategies (see Table 9). In both occupational groups the main factor that determined the development of chronic stress was a reduced capacity for reflection and awareness of self-emotions and feelings. To a rather great extent the development of chronic stress was also determined by focusing on self-management and self-control, which, however, had a different impact in the two occupational groups. The significant influence of direct and asocial coping was evident in each of the examined contingents.

Thus, the main predictors of chronic stress in the medical personnel were impulsive coping strategies and reduced control over their emotions and feelings. In teachers the key determinants of the accumulation of negative stress symptoms were aggressive actions and the reduction of assertive actions. The trend to self-management and self-control enhanced manifestations of chronic stress in the teachers, perhaps because of the teachers' typical orientation to hyper-self-control, which can lead to aggressive outbreaks in difficult situations.

Table 9. Predictors of the Manifestation of Chronic Stress (Regression Analysis Results)

Indicators	R^2	Level of significance (t-criterion)
***Medical personnel* (n = *40*)**		
1. Self-awareness	0.27	$t = -3.69$, $p < 0.01$
1. Self-awareness 2. *Instinctive actions*	0.41	$t = -4.25$, $p < 0.01$ $t = 2.92$, $p < 0.01$
1. Self-awareness 2. *Instinctive actions* 3. Self-management	0.51	$t = -1.81$, $p < 0.1$ $t = 3.80$, $p < 0.01$ $t = -2.73$, $p < 0.01$
***Teachers* (n = *77*)**		
1. Self-awareness	0.31	$t = -5.30$, $p < 0.01$
1. Self-awareness 2. *Aggressive actions*	0.38	$t = -3.41$, $p < 0.01$ $t = 2.79$, $p < 0.01$
1. Self-awareness 2. *Aggressive actions* 3. Self-management	0.44	$t = -3.96$, $p < 0.1$ $t = 3.18$, $p < 0.01$ $t = -2.48$, $p < 0.05$
1. Self-awareness 2. *Aggressive actions* 3. Self-management 4. *Assertive actions*	0.48	$t = -3.20$, $p < 0.01$ $t = 2.81$, $p < 0.01$ $t = 2.32$, $p < 0.01$ $t = -2.17$, $p < 0.01$

Table 10. Predictors of Personality and Behavioral Deteriorations (Regression Analysis Results)

Indicators	R^2	Level of significance (t-criterion)
***Medical personnel* (n = *40*)**		
1. *Aggressive actions*	0.44	$t = 5.34$, $p < 0.01$
1. *Aggressive actions* 2. *Instinctive actions*	0.49	$t = 5.75$, $p < 0.01$ $t = 2.04$, $p < 0.05$
1. *Aggressive actions* 2. *Instinctive actions* 3. Social awareness	0.57	$t = 5.20$, $p < 0.1$ $t = 2.75$, $p < 0.01$ $t = -2.55$, $p < 0.05$
1. *Aggressive actions* 2. *Instinctive actions* 3. Social awareness 4. Relationship management	0.65	$t = 5.70$, $p < 0.01$ $t = 2.99$, $p < 0.01$ $t = -3.44$, $p < 0.01$ $t = 2.73$, $p < 0.01$
1. *Aggressive actions* 2. *Instinctive actions* 3. Social awareness 4. Relationship management 5. Age	0.69	$t = 5.24$, $p < 0.01$ $t = 3.61$, $p < 0.01$ $t = -3.71$, $p < 0.01$ $t = 3.23$, $p < 0.01$ $t = -2.08$, $p < 0.05$
Teachers ($n = 77$)		
1. Aggressive actions	0.20	$t = 3.93$, $p < 0.01$

The impact of individual characteristics on the development of personality and behavioral deteriorations was pronounced only in the medical personnel (see Table 10). The most significant contributors to psychological disadaptation were frequent use of instinctive and aggressive coping strategies as well as low social awareness and a tendency to control the emotions and feelings of others.

In teachers the only significant contributor to the development of personality and behavior deteriorations was aggressive coping actions ($R^2 = 0.20$; $t = 3.93$, $p < 0.01$). A quick temper and a confrontational position in professional interactions (with colleagues and pupils) can be viewed as predictors of the burnout syndrome. We can assume that a reduced number of such predictors for personality and behavioral deteriorations were found in teachers because of the length of their teaching experience (more than 20 years on average). It is well known that the critical period for the development of burnout is 5 to 12 years, and after that the effects of negative stress are mainly an increase in psychosomatic disorders and the development of asthenic syndrome (Velichkovskaya, 2004).

Discussion and conclusions

The elicited factors of high tension and psychological adaptation disturbances in the medical specialists and the teachers are in agreement with those found using the contemporary systems methodology for occupational-stress research (Cooper et al., 2001; Leonova, 2007). The demands of professional activity determined the general trend of the described stress syndromes and the stress-pattern manifestations even in the extreme situation of the study. This statement is substantiated by the following results:

1. The general tendencies in the development of destructive forms of stress in the two occupational groups were defined. In both the medical personnel and the teachers the dominant components of the integrated occupational-stress syndrome were the excessive degree of manifestations of acute and chronic stress as well as the fixed symptoms of burnout and increasing neurotic reactions. Accumulated during a whole working life, the stable manifestations of distress were aggravated by the accident situation. The main trends of the disturbances not only limited the possibilities for an adequate response to the demands of a highly tense situation but made more difficult the performance of even habitual tasks and, moreover, deformed self-attitude and attitude toward work.

2. Analysis of the data from the three stress-level groups revealed the dynamics of occupational stress and elicited several factors as individual providers of that stress; these findings are helpful to people coping with similarly tense work conditions. The stress syndrome expanded according to the generalized accumulation of negative symptoms. At the same time the specifics of the stress-development process were different for the two occupational groups. In the medical staff the degree of stress rose when general work tension increased. In the teachers the key factor in intense stress was the sustained negative attitude toward work, which was interpreted as "pedagogical routine." Such distortion of the job image leads to a loss of a sense of meaning in one's work, a decrease in motivation, and a devaluation of work results.

3. Qualitative analysis of coping behavior showed the prevalence of prosocial (social joining, seeking social support), direct and asocial (instinctive and aggres-

sive actions), and passive (cautious actions) behavior models. The low index of assertive actions can be interpreted as an indicator of an insufficiency of coping resources. Feelings of helplessness and inadequacy determine the explicit need for social support, the desire to avoid additional troubles, and the intention to eliminate tensions and anxiety by any means.

4. The data revealed developed emotional intelligence in the participants and, at the same time, some imbalance among the components of emotional intelligence: the highest extent of self-control and the lowest level of understanding self-emotions and identifying the emotions of others. Insufficient psychological stress-management skills make employees prone to stress. Special training in the means of self-regulation could compensate for the lack of adaptive psychological resources.

5. Regression analysis helped to confirm the influence of some individual characteristics on the intensity of the manifestation of stress. Low self-emotion reflexive capacity, as well as instinctive and aggressive coping behavior, can be viewed as the predictors of chronic fatigue and the accumulation of professional distortions. The results showed that the development of these stable maladaptive forms is closely connected with the lack of some particular components of emotional intelligence and the use of nonadaptive coping-behavior models. The general (limited reflexive abilities) and the specific predictors of the consequences of destructive stress were singled out. In the medical personnel the main predictors were the preferred use of instinctive coping strategies and the low level of control over self-emotions; in the teachers, the predictors were aggressive coping actions combined with the enhanced control of self-emotions. These differences reflect specific inadequate emotional-behavioral patterns in the abreaction of work problems.

6. Predictors of chronic stress and predictors of professional distortion turned out to be different from each other. For chronic stress a tight predictor set was found; it consists of emotional-intelligence characteristics and the dominance of disadaptive coping behavior. The development of professional distortions is to a great extent elicited by frequent use of aggressive and instinctive actions. Most likely the accumulation of symptoms of chronic stress leads not only to a decrease in adaptative potential but also to the somatization of the effects of long-term tension.

7. Habitual means of stress management and a restricted range of coping-behavior models are not enough for the effective elimination of the long-term consequences of tension. For this reason the elaboration and implementation of psychological support programs for medical staff, teachers, and psychologists are on the agenda. These programs should be targeted to the development of emotional competence, the acquisition of self-regulation skills, and the framing of constructive coping strategies. The implementation of the training program designed for psychologists showed a strong multilevel optimization effect, which was obtained by using means of self-regulation based on reflexive analysis.

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