Chapter #21

STRESS, EXHAUSTION AND DEPRESSION: THE CENTRAL VARIABLES IN HIGH-RISK PROFESSIONS AND THE ROLE OF PERSONAL RESOURCES

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ABSTRACT
The importance of personal resources in the context of high demanding work conditions is often being reported. However, when and what type of personal resources are the beneficial ones is not fully understood. The aim of this study is to apply network analysis and explore closeness of relationships between personal resources, occupational stressors, perceived stress, the three areas of burnout, depressive symptoms and self-rated health in individuals working in high-risk professions. The study sample comprised 277 police officers, prison guards, customs officers and NHS physicians and nurses (68,6% men, Mage = 36.97, SDage = 8.98). Observed variables included perceived stress (PSS), occupational stressors (OSI-R ORQ) and personal resources (OSI-R PRQ), depressive symptoms (SDS), burnout (MBI) and self-rated health (item from SF-36). The network analysis (EBICglasso) was performed. Network analysis revealed that the most central (degree indicator) variables were depressive symptoms, stress, emotional exhaustion and particular occupational stressor-role ambiguity. These variables are potentially the most useful to be directed by intervention programs. Activating recreation, rational coping and social support could be potentially beneficial strategy in alleviating depressive symptoms. Recreational activities could protect health deterioration. Self-care strategies did not have a strong position in the network model.

Keywords: personal resources, depressive symptoms, self-rated health, occupational stress, burnout.

1. INTRODUCTION

Stress is inherent part of human life. According to Fink (2016), in ages between 1983 and 2009 the stress levels increased by 10-30 % among all demographic groups in the USA. Cohen and Janicki-Deverts (2012) in their large study revealed that between years 1983, 2006 and 2009 the subjectively perceived stress levels in the USA had been significantly increasing. The growing levels of perceived stress are not localized plausibly only in the USA. The stress levels in selected professions, which are potentially prone to stress, have been assessed also in Slovak settings (Nezkusilová, Hricová, & Mesárošová, 2019). The results revealed that in large representative sample of 729 individuals working in professions prone to burnout, perceived stress was relatively high in average, yet not significantly different to the stress levels of the employed workers in the USA (Nezkusilová et al., 2019) based on the results of perceived stress from the year 2009 (Cohen & Janicki-Deverts, 2012). Approaches interpreting the increasing stress levels in various populations across continents all seem to acknowledge that stress is highly personalized and its sources vary greatly between individuals in society. In the current cross-sectional study,

we explore professions that are objectively classified by consortium of occupational physicians as the occupations with increased physical and mental demands. The levels of stress, depression, burnout symptoms and their relationship with personal resources are being explored.

2. BACKGROUND

There are presumably multiple reasons for the increased levels of stress. Among core sources of the stress, Fink (2016) considers occupational stress related to little control but too many demands at work. Based on systematic meta-review Harvey et al. (2017) identified twelve work-related risk factors: *"high job demand, low job control, low workplace social support, effort–reward imbalance (ERI), low organisational procedural justice, low organisational relational justice, organisational change, job insecurity, temporary employment status, atypical working hours, workplace conflict/bullying and role stress"* (Harvey et al. 2017, p. 2). In past few years, another category of job related stressors has been studied. Significant percentage of the working population is influenced also by information and communication technologies - ICT (Stacey et. al., 2018). World health organization (WHO, 2014) stated possible negative effect of ICT onto physical and mental health of the working individuals. There is increased necessity of adjustability to new forms and types of work. In the digital age, the online working space combined with flexible working hours, increasing average hours of home-office is making it more difficult to set the work-life boundaries (Kossek, 2016; Seilerová, 2019). The support of these changes is the growing number of scientific articles and changing discourse in society, which is conversing from topics of work-life balance to work-life integration and work-life blending (e.g. Kossek, 2016).

The increasing levels of perceived stress could be explained also by the Conservation of Resources theory (Hobfoll, 1989, Hobfoll, Halbesleben, Neveu & Westman, 2018). The COR theory (Hobfoll et al, 2018) assumes that the stress emerges when important resources are too difficult to gain, are threatened with loss, or are lost already. In contrast to other stress theories, COR assumes that humans have built-in bias that tends to exaggerate the loss of resources and underestimate the gain of sources. Then, the stress is connected especially to the loss of valued resources. Based on the COR theory it can be assumed that the surge of perceived stress in society could be caused also by perceiving oneself as possessing less than others possess. Due to the rapid changes in society, sequential multiple careers and instability of work opportunities combined with unrealistic images from social media, a working individual is constantly comparing himself to the representations of skills, capabilities, "wealth"/salary, fitness and other attributes he does not have at the moment. In addition, humans have a tendency of being more sensitive to perceiving the "lack of" (skills or wealth), rather than concentrating on actual available resources.

Harvey et al. (2017) in the systematic meta-review explored several models, which are explaining the relationship between occupational risk factors and mental health, among them the job-demand-control-support model and ERI model - the effort and the reward imbalance at work. In the study, authors propose a unifying model with evidence-based potential latent variables behind the relationship between occupational stress and deteriorated mental health. The authors suggest three clusters of occupational risk factors: "1. Imbalanced job design (job demands, job control, ERI, occupational social support), 2. Occupational uncertainty (job control, procedural justice, organisational change, job insecurity, temporary employment status) and 3. A lack of value and respect within the

workplace (ERI, procedural justice, relational justice, temporary employment status, occupational social support)" (Harvey et al., 2017, p. 7).

In summary, several large meta-analytic studies supported the assumptions identifying the occupational stress as a trigger of depressive symptoms, psychiatric health and well-being (e.g. Madsen et al., 2017; Nieuwenhuijsen, Bruinvels, Frings-Dresen, 2010). A more profound meta-review of occupational stress and general deterioration of well-being and health offer Harvey et al. (2017). The work environment, night shifts, changing working hours and emergency service are also contributing to sleep disorders, depression and health deterioration (Bara & Arber, 2009). In high-risk professions, stress, anxiety and depression are among common reasons leading to work absence and formal disability (Baumann, Muijen, & Gaebel , 2010). A meta-analysis of 153 studies tested the evidence of relationship between job strain and absenteeism and assumed that the relationship is small but significant and the link is possibly mediated through the psychological and physical symptoms of illness (Darr & Johns, 2008). Depressive disorders without psychotic symptoms are on rise in Slovakia as well as in Western Europe. Depressive symptoms are often related to burnout, however, burnout is a specific syndrome, while depressive symptoms may be indicators of diverse mental disorders.

Besides the universally raising levels of stress, there are particular professions that are objectively considered as even more physically and mentally demanding and potentially more stressful than other professions. In these occupations there are additional distinct factors contributing to the levels of stress and greater risk of physical and mental health deterioration. In this chapter, we are exploring police officers, prison guards, customs officers, and NHS doctors and nurses, who are in direct contact with every day threatening situations, violent assaults, death of co-workers or clients and patients, are exposed to shift work and work in emergency. A meta-analysis of police personnel by Syed et al. (2020), which involved 272 463 police personnel, showed prevalence of depression (14,6%), PTSD (14,2%), generalized anxiety disorder (9,6%) or alcohol dependence (5%). Occupational stress was related to depression and PTSD symptoms. The authors suggest that the partial cause may be potential poor social support and maladaptive coping strategies (Syed et al., 2020). Similarly, emergency doctors experience higher rates of anxiety, depression and burnout when compared to other medical professions (Estryn-Behar, 2010).

Reflecting the need to relieve working population from stress, anxiety and depressive symptoms, the intervention programs aiming at decreasing stress or burnout are multiplying. In a systematic review, Basu, Qayyum, and Mason (2016) explored 63 stress-oriented interventions, of which only three suggested changes in burnout. Most of the treatments were based on secondary-level intervention and aimed at increasing resilience by mindfulness or other cognitive-behavioral approaches (Basu et al., 2016). On the other hand, Dreison et al. (2018), in his large meta-analysis of 27 samples (1894 participants) of past 35 years of interventions of burnout, concludes that intervention programs in mental-health providers were, in general, successful. The outcomes were, however, not always with effect size that would compensate the energy and costs of employers and employees undergoing them. Leiter, Laschinger,Day, and Oore (2011) in his systematic review reports that a primary-level (preventive) interventions seem promising, especially when aiming at improving communication and relationships at the workplace or if aiming at improving work schedules (Ruotsalaine, Verbeek, Mariné, Serra, & Ruotsalainen , 2015). On the other hand, mentoring programs did not seem to be effective (Ruotsalaine et al., 2015). Nowadays, especially in crises such as COVID-19 crisis, it is extremely useful to realize which strategies work for who in order to optimize them, activate and support the evidence-based strategies. The importance of useful interventions is indisputable.

Osipow (1998) in his process of creating theoretical framework of occupational stress and its prevention, characterized four main areas of personal resources. They included social support, recreation, self-care and person's rational/cognitive coping. Personal resources help the individual maintain his physical and mental health – in his private as well as working life. Historically, there can be found significant connection between personal resources, health maintenance and self-care strategies. The connection is prevalent since 1979, when almost 50% of deaths in the USA were accounted to "unhealthy lifestyle" (US Department of Health, Education and Welfare, 1979). Even nowadays unhealthy lifestyle still accounts for high percentage of deaths not only in the USA. WHO states that non-communicable diseases kill 41 million people every year, which is equal to 71% of all deaths globally (WHO, 2018). Physical factors are still being studied in relation to health, such as alcohol consumption (Burton, & Sheron, 2018), diet (e.g. Afshin et al., 2019), or physical exercise (e.g. Abdin, Welch, Byron-Daniel, & Meyrick, 2018). Yet, the research has been leaning also towards maintaining mental well-being by self-development, recreation/leisure, emotion regulation or other self-care strategies. Self-care has been defined as one's ability to regulate, initiate or maintain health (WHO, 2009), but also improve health and overall physical and psychological well-being and personal growth (Lovaš, 2014).

Several meta-analytical studies and literature reviews suggest that personal resources – such as recreation, leisure, physical and psychological self-care, social support, rational coping and emotional control may function as strategies, which protect from the development of depression, physical and mental health deterioration or burnout (Dreison et al., 2018; Leiter et al., 2011; Abdin et al., 2018; Ruotsalaine et al., 2015). Particular mechanisms may, however, differ in specific sub-populations. Misunderstanding needs and preferences of particular groups of people could be among core problems why many interventions reducing stress, burnout and their symptoms fail or have very weak effect sizes (Basu et al., 2016; Dreison et al., 2018; Hricová, Nezkusilová, & Ráczová, 2020). Studies of Aust, Rugulies, Finken, & Jensen et al. (2010) or Nielsen, Fredslund, Christensen, & Albertsen (2006) highlight the importance of screening for specific needs of individuals working for the organization as well as customizing particular intervention programs. The authors propose that unfulfilled expectations about the usefulness of an intervention or any educational event may play a role in even worsening symptoms of stress and burnout.
Nowadays research is shifting towards understanding preventive mechanisms and coping strategies in particular subgroups, in contemplation of avoiding or alleviating the occupational stress. In this study, we are further exploring specific strategies of activating personal resources that may potentially buffer the effects of occupational stress.

3. OBJECTIVE

Based on the results from studies and large meta-analyses, it can be assumed that there is a relationship between the individual's personal resources and perceived stress, areas of burnout, individual's health status and depressive symptoms. Yet, the particular relationships between the variables may be specific for every sub-population and cannot be generalized. The aim of a further cross-sectional analysis is to explore in depth which personal resources are related to stress, areas of burnout and depression in the individuals working in occupations which are classified by consortium of occupational physicians as the occupations with increased both physical and mental demands. A network analysis was computed to identify central variables that could be targeted by intervention programs in order to improve well-being and health in the studied professions.

If the central variables are identified, network analysis may be used to assess also the closeness of the relationships with particular personal resources that may be used in future interventions to diminish the stress, areas of burnout or health deterioration.

The centrality resembles the importance of each variable (node) in the studied network. Network analysis is a corrected partial correlational network useful also for understanding the strength of the relationships between multiple variables. The strength suggests which variables are directly connected to other variables and may be tested in complex predictive models or intervention studies in the future.

4. METHODS

4.1. Participants

The sample consisted of 277 (87 women) professionals from the high-risk professions. It comprised police personnel (N = 70), Prison and Court Guard Service (N = 71), customs officers of the Financial Administration of the Slovak Republic (N = 65), and physicians (N = 55) and nurses (N = 16) from the National Health Service, who are working in state hospitals. These high-risk professionals are directly participating in every day threatening situations, violent and aggressive assaults, death of co-workers or clients/patients, they are exposed to shift work and have higher rate of emergency duty. Further description of the sample is available in Table 1. The Table 1 summarizes also descriptive statistics of the examined populations.

Table 1.
Descriptive characteristics of the sample.

Characteristic	**Profession**			
	Customs officers	Prison guards	NHS doctors and nurses	Police personnel
Gender				
Male	43	66	28	53
Female	22	5	43	17
	M (SD)	**M (SD)**	**M (SD)**	**M (SD)**
Age	36.6 (8.4)	36.8 (7.2)	39.6 (11.2)	35.0 (8.3)
Depressive symptoms (Zung)	35.6 (8.1)	35.3 (7.7)	35.0 (9.5)	34.9 (7.9)
Self-rated health	2.38 (0.8)	2.25 (0.8)	2.1 (0.8)	2.3 (0.9)
Burnout				
Exhaustion	1.7 (1.2)	1.8 (1.0)	2.0 (1.2)	2.0 (1.2)
Depersonalization	2.1 (1.4)	1.3 (1.2)	1.3 (1.3)	1.5 (1.3)
Personal Accomplishment	3.0 (1.1)	3.3 (1.0)	4.5 (1.0)	3.8 (1.1)
Perceived stress	24.6 (6.0)	25.3 (6.1)	24.7 (6.5)	24.3 (6.1)
Occupational roles				
Role overload (RO)	20.6 (5.8)	22.4 (4.8)	24.0 (7.1)	21.6 (5.2)
Role insufficiency (RI)	30.4 (7.3)	21.5 (5.0)	20.1 (5.6)	23.2 (6.1)
Role ambiguity (RA)	22.9 (6.9)	20.0 (5.7)	21.3 (6.6)	20.1 (5.8)
Role boundaries (RB)	24.6 (4.8)	22.9 (4.3)	24.4 (3.8)	24.3 (4.5)
responsibility (R)	17.9 (6.1)	15.6 (4.2)	18.1 (4.7)	17.8 (5.6)
physical environment (PE)	19.5 (6.4)	15.0 (4.5)	19.9 (6.6)	19.0 (5.9)
Personal resources				
Recreation (RE)	33.2 (6.6)	30.3 (5.8)	32.3 (7.5)	30.8 (6.9)
Self-care (SC)	25.4 (5.7)	23.6 (5.3)	27.4 (6.3)	24.5 (6.6)
Social support (SS)	38.7 (8.6)	41.0 (7.6)	42.8 (7.8)	41.0 (10.6)
Rat./Cognitive coping (RC)	36.9 (6.7)	34.8 (6.2)	36.0 (6.5)	34.2 (6.9)

4.2. Measures

Respondents fulfilled sociodemographic variables (age, gender, nightshifts, type of work).

Respondents also self-rated their health status by answering selected single item from the multipurpose *Short Form Health Survey*, SF-36 (Medical Outcomes Trust, Boston, MA). Respondents rated their health on the 5-point scale with verbal anchors (1 = excellent to 5 = poor). Bowling (2005) proposes that the single item has very good validity and is satisfactory in revealing currently perceived health of the person. The higher the score is, the worse is the perceived health by the respondent – it reveals the perceived deterioration of health. Similar version of the item is frequently used by OECD countries in the health interview surveys (http://www.oecd.org/publications).

The Occupational Stress Inventory – Revised was used (OSI-R, Osipow, 1998; with validity and reliability of the Slovak translation confirmed in Osipow, 2010). The inventory measures three work-related areas: 1. Occupational stress (Occupational Roles Questionnaire – ORQ), which is assessed by using six scales examining roles that have been connected to perceiving stress at work: Role Overload, Role Insufficiency, Role Ambiguity, Role Boundary, Responsibility, and Physical Environment; 2. Psychological strain (PSQ) and 3. Coping resources (Personal Resources Questionnaire - PRQ): Recreation, Self-Care, Social Support, and Rational/Cognitive Coping. In this study, the measure of psychological strain was not used, because other questionnaires assessing metal health have better validity and reliability (such as Zung's Depression Scale). Cronbach's α reliability of the ORQ is 0.89, PSQ is 0.87, and PRQ is 0.90.

Perceived stress was measured by using *Perceived stress scale* (Cohen, Kamarck, & Mermelstein, 1983); validity and reliability of the Slovak questionnaire by Ráczová, Hricová & Lovašova, 2018). It is a 10-item measure, in which respondents report their feelings of stress during the last month on a 5-point scale (0 = never; 4 = very often). In the current study, the Cronbach's α reliability of the perceived stress scale was 0.85.

Maslach Burnout Inventory (Maslach et al. 1996, validity of the Slovak questionnaire by Ráczová, & Köverová (2020); translation agreement TA-673. The instrument consists of 22 items, which measure three aspects of burnout syndrome, the level of emotional exhaustion, depersonalization (cynicism) and personal accomplishment. Respondents indicate the frequency of experiencing work-related feelings using a 7-point scale (0 = never; 6 = every day). Cronbach's α reliability of the exhaustion is 0.89, depersonalization is 0.72, personal accomplishment is 0.75.

Depressive symptoms were rated by using the Slovak version of the *Zung Self-Rating Depression Scale* (Zung, 1991). The scale comprises 20 items, in which the respondent indicates the degree of depressive symptoms in past two weeks on a 4-point scale. The Cronbach's α reliability of the SDS questionnaire in this dataset was 0.88.

4.3. Data analysis: The network analysis

Psychology network analysis is a form of exploratory analysis. Between each node (variable) are edges - representing the partial correlation between the two variables controlled for all other relationships in the network. The scales scores represent variables - "nodes" in the network. The network of complex interactions between personal resources, occupational stressors, perceived stress, burnout, depressive symptoms, and self-rated health was estimated using the estimation technique: graphical LASSO (Glasso). The bootstrapping 3000 was used. The color of the edges signifies the positive (blue color) relationship or negative relationship (red color) between the variables; the thickness of edges represents the strength of each relationship. The used algorithm places nodes with a

stronger relationship closer to the center of the graph. In the network analysis, several indices are computed to estimate the importance of each node. In this analysis, the indicator "strength" was of our main interest, since bootstrapped stability analyses indicated that the closeness and betweenness estimates were too instable across subsamples of the data. The strength indicates the number and the magnitude of the direct relationship with other nodes in the network. The estimation of the stability of the centrality indicators and the stability of edge weights, the accuracy of networks, were also computed.

The analysis of the stability of edge weights and nodes was performed by using 3000 bootstrap samples. The nodes indicated acceptable stability. Supplementary material of the stability of nodes and edge weights, as well as difference test between nodes centrality may be sent upon the request.

5. RESULTS

Inspection of the network analysis (Figure 1, Figure 2 and supplementary material) aiming at the strength, as a centrality measure of our main interest, reveals that the most central nodes in this network are *depressive symptoms, perceived stress, burnout - exhaustion* and occupational stressor - *role ambiguity* (RA). Significantly less central were Occupational stressors - boundaries (RB) and feelings of insufficiency at work related tasks (RI), personal resources - recreation (RE). Even less central were occupational stressors - responsibility (R), MBI - personal accomplishment, MBI - depersonalization, personal resources - rational coping (RC) and social support (SS).

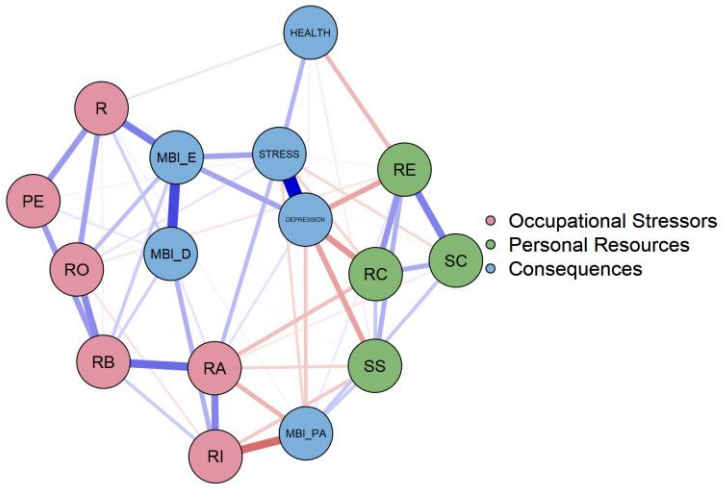
Conversely, the following variables (nodes) were not central in the network: Personal resources - self-care activities, self-reported (low) health, and occupational stressors - physical environment (PE) and work overload (RO) The estimated network and selected centrality indicators are presented in Figure 1 and 2.

It is important to note (Figure 1) the significant relationship between depression, stress and MBI - emotional exhaustion, creating a triangle of strong significant relationships. MBI - emotional exhaustion was significantly connected also to the occupational stressor - responsibility (R). Occupational stressor - role ambiguity (RA) was also positively connected to stress. These variables may trigger each other. On the other hand, low feelings of insufficiency at work (RI) are positively related to feelings of high personal accomplishment (MBI-PA).

After examining the personal resources (Figure 1) of recreation, rational coping and social support, it is clear that they have direct negative relationship with depressive symptoms and the deterioration of health. Personal resource – using rational coping (RC) strategies and to certain degree also having a social support (SS) was linked negatively to perceiving ambiguity at work. Self-care (SC) did not have a strong position in the network model.

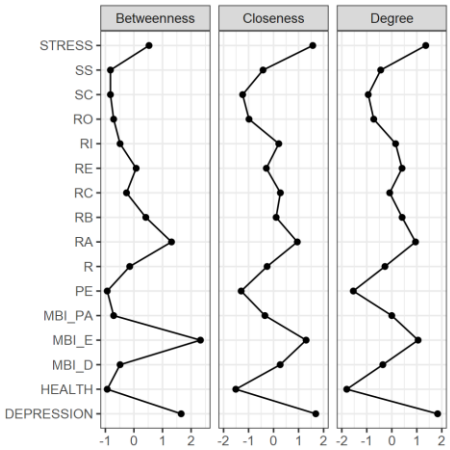
To summarize, *personal resources – rational coping, social support and recreation* are directly linked to the two most central variables in the model – *depressive symptoms and role ambiguity (occupational stressor)*.

Figure 1.
Estimated network of the professionals from the selected high-risk occupations.



Note. SS – Social Support; SC – Self-Care; RO – role overload, RI – role insufficiency, RE – recreation, RC – rational coping, RB – role boundaries at work, RA – role ambiguity at work, R – responsibility at work, PE – physical environment at work, MBI_PA – Personal accomplishment (burnout), MBI_E – exhaustion (burnout), MBI_D – depersonalization (burnout)

Figure 2.
The plots of centrality indicators in the selected high-risk professionals. Only the Degree (strength) was analyzed in this study.



Note. SS – Social Support; SC – Self-Care; RO – role overload, RI – role insufficiency, RE – recreation, RC – rational coping, RB – role boundaries at work, RA – role ambiguity at work, R – responsibility at work, PE – physical environment at work, MBI_PA – Personal accomplishment (burnout), MBI_E – exhaustion (burnout), MBI_D – depersonalization (burnout)

6. DISCUSSION AND CONCLUSION

The study explored importance (centrality) of particular nodes: perceived stress, burnout areas (emotional exhaustion, depersonalization, personal accomplishment), depressive symptoms, decrease of self-reported health, occupational stressors (roles) and areas of personal resources. The central, or the core variables in this study are those that are directly connected to other variables. These are the variables that are the most „dominant" and could be targeted by potential interventions. It can be concluded, that *depressive symptoms, emotional exhaustion, and stress*, but also occupational stressors, especially *role ambiguity (RA)* are among the central variables that should be targeted by intervention programs supporting the health and well-being of the selected high-risk professions.

Notably, depressive symptoms, stress and exhaustion dominated in the network. They formed a triangle of interrelationships. These variables may be triggering symptoms of each other, which is in line with clinical observations and with previous studies (Koutsimani, Montgomery, & Georganta, 2019). However, from the evolutionary perspective, the depressive symptoms may not be simply good or bad, but rather function as a compass revealing a person his own inner dissatisfaction with current state of his life - whether the dissatisfaction is in his personal life, working life or work-life balance, or inability of blending the two worlds (Andrews & Thomson, 2009).

Importantly, p*ersonal resources – rational coping, social support and recreation* seem to have an important role in the network, as they are directly linked to the two most central variables in the model – *depressive symptoms and role ambiguity (occupational stressor)*. The strongest benefit of personal resources may be in diminishing or buffering the depressive symptoms of the working personnel. Especially the recreation (RE), rational coping (RC) and social support (SS) could have promising results in intervention programs. Additionally, recreation could support health of the working individual.

Unsurprisingly, rational coping (RC) strategies and social support (SS) may prevent from occupational stressor - the work ambiguity (RA), which is related to unclear work content, misunderstanding of directions and expectations from employer. Rational coping and social support may refine the ambiguity at work by having good relationships with colleagues at work, improving communication and understanding the content of one's job position.

To summarize, intervention program makers may want to create programs, which would activate particularly useful strategies, especially recreation, but also rational coping and social support. On the other hand, self-care subscale (sleep, meditation, relaxation, diet, exercise or regular health checks) was not directly connected to negative symptoms, such as depression or stress. There are many programs aiming at increasing self-care nowadays (e.g. Mesárošová et al., 2019), yet, it seems that self-care is not a core issue for all participants. For the studied risk-group of professionals, there may be strategies that are more suitable and effective in alleviating the depressive symptoms and maintaining good health, such as supporting recreation, leisure and hobby activities. In addition, depression could be relieved also by rational coping strategies (setting priorities, facing problems systematically, evaluating results of decisions), or social support.

Additionally, based on the results from this study, the intervention program makers aiming at increasing personal resources and decreasing negative aspects of work, may with to assess the effectiveness of the intervention by measuring the differences in depressive symptoms, as they may be among the first to be affected by the changes of personal resources (due to direct connection). However, intervention maker aiming at changing work environment and occupational stressors may wish to measure effect of the intervention by

assessing the symptoms of particular areas of burnout, as the areas of burnout are directly connected to occupational stressors.

The changes in well-being of the working individual may arise not only from the intervention programs, but also from the companies and organizations themselves. Either by supporting employees' recreation activities (RE), such as vacations, leisure time, doing fun activities during weekends, hobbies, disconnection from work; or by decreasing occupational stressors, mainly the central ones that are connected directly to other negative symptoms or other occupational stressors, such as role ambiguity (RA), boundaries (RB) and feelings of insufficiency at work (RI).

Undoubtedly, the results should be further tested and experimentally verified. It is necessary to distinguish correlative study results from causal studies and be very careful with the interpretations. The cross-sectional character of the study lets us only to hypothesize the causal relationships. The outcomes of the study may help human resource managers and work-psychologists create and test specific programs based on individual needs of the employers.

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ACKNOWLEDGEMENTS

This study was part of the APVV-16-0002 project Mental Health in the Workplace and Employee Health Assessment.

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