



Fund “Nauka” Project № 22012 Resume – Competition-Based Session 2022:

“Assessment of the psychophysiological risk at work in small and midsize businesses in the post-Covid-19 context”

Project leader: Prof. Teodora Todorova Dimitrova, MD, PhD

Goal: To assess and manage the risk for health and work ability of the administrative and production staff of small and midsize businesses, in the context of emerging psychophysiological risk factors after Covid-19.

Research tasks:

1. To study the dynamics in the work ability curve within the working day and working week;
2. To assess the degree of anxiety and depression, and measure stress biomarkers;
3. To create physiological regimens of work and rest;
4. To establish an intervention programme for improving mental performance (group and individual interventions);
5. Efficiency analysis of the preventive measures that were taken.

Applied methods:

1. Documentary: analysis of scientific literature;
2. Sociological: a survey of 200 individuals;
3. Quantitative methods for:
 - 3.1. Assessment of work ability through:
 - ❖ A questionnaire to define WAI;
 - ❖ Tremometry;
 - ❖ Correction test;
 - 3.2. Psychological assessment of the degree of work-related anxiety and depression through standardised methods:
 - ❖ the Zung scale;
 - ❖ the HADS tool;
 - 3.3. Laboratory testing of stress by examining the levels and dynamics in the concentration of salivary cortisol and alpha-amylase;
4. Statistical;

Expected results:

1. Gathering medical evidence for the effectiveness of psychosocial, psychophysiological, organisational ergonomics indicators for a risk assessment of health and work ability in small and midsize business;
2. Design a model for an individualised intervention programme for workplace distress management and prevention of anxiety and depression among workers;

3. The psychological interventions will provide psychological support to the participants, reduce the level of anxiety and distress and respectively improve their mental and somatic health, and increase their resilience to psychosocial risk factors.

Main results

The data show a clear differentiation between the two groups of predominantly physical and predominantly mental labor:

❖ **Physical labor:**

- Higher body mass index (BMI) and significant risk of obesity.
- Statistically higher incidence of hypertension, dyslipidemia and type 2 diabetes ($p < 0.05$).
- Higher triglyceride levels (1.36+/-1.05 and mental labor 0.95+/-0.66 $p < 0.001$ in mental labor).
- Significantly lower percentage of physical activity outside of work.

❖ **Mental labor:**

- Stronger feeling of time deficit and psycho-emotional tension.
- More active health self-control, but high vulnerability to mental exhaustion.

A direct statistical relationship has been established between work capacity and hypertension, as well as subjective feelings of stress.

Analyses identify the impact of the COVID-19 pandemic on workplace health

The pandemic has catalyzed negative processes in SMEs, especially in sectors such as healthcare, logistics and public services. Overtime work and social isolation have led to:

Short-term effects:

- Disrupted biological rhythms and sleep problems.
- Increased irritability, distraction and operational errors.
- Harmful habits as coping mechanisms (alcohol, medication).

Long-term effects:

- Increased risk of heart attack and stroke.
- Endocrine disorders and metabolic syndrome.
- Long-term depressive states.
- Long COVID: A challenge when returning to work, requiring weeks or months of adaptation.

The risk of poor health in SMEs is influenced by several key demographic and social factors:

1. **Gender and marital status:** Women and parents of young children experience greater stress due to the difficult work-family balance.
2. **Age:** Older employees are more concerned about their health.
3. **Socio-economic status:** People with lower incomes experience greater financial stress.

4. **Occupational specificity:** “Frontline” employees (couriers, service staff) are at higher risk.

An analysis of the existing literature identifies the main mental health challenges faced by employees, including increased levels of stress, depression and anxiety. In response to these challenges, various strategies to support mental health are considered, such as psychological support programs, stress management training and the creation of a supportive work environment.

Half of the participants had a "very good" WAI, but higher stress and emotional exhaustion were associated with lower overall work capacity and less favorable daily/weekly dynamics. With high stress, people were less likely to "get into the rhythm" (difficulty settling in) on Monday morning, and by Friday afternoon, the most pronounced declines in speed, accuracy, and self-assessment of the condition were observed. The simple combination “WAI under “very good” + moderate/high stress” identifies groups at increased risk for reduced work capacity, difficulty engaging at the beginning of the workweek and expected declines towards the end. In summary, the WAI, supplemented by a brief stress/exhaustion assessment, is a practical, non-invasive and low-resource tool for routine screening in an office environment, allowing early detection of risk in mental work. The analytical approach allows prioritization of resources to vulnerable subgroups (lower WAI and moderate/high stress), as well as adaptation of schedules by shifting complex cognitive tasks to time windows with a higher probability of optimal concentration (midday/Wednesday). The observed relationships between perceived stress, depression and chronotype suggest that the integration of basic interventions related to psychoprophylaxis and sleep hygiene can improve resilience during the week.

Effective health management in SMEs requires a holistic approach. The organisational culture needs to be transformed to support employees, especially when returning from long-term illness.

Effective reintegration practices:

- Phased Return: Planned reduction of working hours at the beginning and avoiding deadlines.
- Flexibility: Possibility of teleworking, changing shifts and providing additional breaks.
- Communication: Maintaining personal contact during the employee’s absence.
- Task adaptation: Reducing cognitive and physical burden for a certain period.

Conclusion

Investing in mental and physical health in the workplace is not only a social responsibility, but also an economically sound choice. Studies in the EU confirm that prevention leads to concrete benefits for employers by reducing sick leave and turnover.

To remain competitive, small and medium-sized businesses need to integrate stress management and the physiological organization of working hours into their business strategy. A healthy and engaged employee is the key to overcoming any economic crisis.

The results highlight the need for targeted strategies for prevention and health promotion, tailored to the specific occupational and health risks of employees in small and medium-sized enterprises.

Easy-to-implement measures are recommended: optimization of time workload (reduction of the “time deficit”), structured active breaks, consideration of the natural daily rhythm/chronotype when planning complex tasks, to facilitate “getting started” and limit the Friday slump. The approach is applicable for routine corporate screening and monitoring, without the need for complex tools, and can serve as a basis for further interventional studies.