THE PERCEPTION OF STRESS, BEHAVIOR IN STRESSFUL SITUATIONS AND MENTAL HEALTH OF BANK EMPLOYEES WITHIN A GERMAN-U克RAINIAN COMPARATIVE STUDY

BEATRICE THIELMANN¹, IGOR ZAVGORODNII², KSENIIA ZUB², and IRINA BÖCKELMANN¹

¹ Otto-von-Guericke-University, Magdeburg, Germany
² Kharkiv National Medical University, Kharkiv, Ukraine

Abstract

Objectives: The banking sector is a branch of the global labor market that is increasingly facing stress. This can have some negative effects on mental and physical health. The aim of the study was to examine the management of stress and the assessment of mental health in 2 European countries.

Material and Methods: The sample comprised 90 (52%) German and 83 (48%) Ukrainian bank employees (BA) (N = 173). To achieve the aim of the study, the following questionnaires were used: the Differential Stress Inventory (DSI), the Inventory for Personality Diagnosis in Situations (IPS) and the 12-item General Health Questionnaire (GHQ-12). The participants were examined in regard to nationality. Age, gender, senior position and DSI types were considered as covariates.

Results: There were some significant national differences. The senior position, gender and age alone had little or no influence on the results. In stress management, the German sample showed unfavorable values of DSI and IPS categories. Significantly more German bank employees (10%) were overstressed (DSI type II) compared to Ukrainian ones (3%). Significant differences in stress trigger, stress manifestation and stress stabilization of DSI, and in almost all IPS categories, were found between the bank employees of both countries. More specifically, 20% of the German sample and only 8.8% of the Ukrainian sample reported impaired mental health.

Conclusions: Bank employees from Germany and Ukraine differed in their perception of stress and behavior in stressful situations, based on the DSI and IPS results; the Germans were shown to perform worse. This is reflected in the higher level of mental health impairment among the Germans, which is demonstrated by the GHQ-12 results. However, there is a need for workplace health promotion and preventive programs for both samples. Int J Occup Med Environ Health. 2022;35(1):81–94

Key words: personality, prevention, stress, European, employees, senior position

INTRODUCTION

The banking sector is a branch of the labor market that exemplifies an increase in stress in the workforce. The sector is experiencing this change in work through changes in work organization, digitization and the global economic crisis [1]. A recent review has shown stress within the banking sector to be at a critical level, which can have some negative effects on mental and physical health. The review has also confirmed the findings of 20 individual studies that mental health problems increased in the banking sector and were related to stress [1].

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Corresponding author: Beatrice Thielmann, Otto-von-Guericke-University, Institute of Occupational Medicine, Medical Faculty, Leipziger Straße 44 (House 20), 39120 Magdeburg, Germany (e-mail: beatrice.thielmann@med.ovgu.de).
Mental diseases are of interest for occupational medicine, society, the health care system and health economics. Forecasts show an increase in expenditure on mental diseases worldwide, from USD 2.5 trillion in 2010 to USD 6.0 trillion in 2030 (excluding expenditure on complications of mental diseases such as cardiovascular diseases or diabetes mellitus) [2]. Employers in Germany are legally obligated to evaluate the risk of mental stress in companies [3]. The Occupational Safety and Health Law of Ukraine lacks a risk assessment of mental stress [4]. Based on the findings from the assessment of subjective and objective psychological stress in the context of occupational medicine advisory service, consultation is recommended [5] and appears to be more and more important. Occupational health organizations exist in most European countries [6], underlining the importance of occupational medicine. Work-related stress is a reaction to job-related demands in case of the absence of sufficient knowledge, abilities, or skills to cope with workloads. Thus, the knowledge about individual stress experience and behavior of an employee, as well as the ways of coping with it, play an important role for both personal well-being and professional success [7]. Furthermore, the knowledge of personality traits is helpful in coping with workloads [8]. For example, individuals with increased emotionality in the sense of mood lability, and agitation in the sense of irritability, displayed greater influence on a resignation tendency in case of failure at work and the lack of inner peace and balance [8].

Not only sufficient knowledge, abilities or skills about the job, but also the awareness about individual stress experience and behavior, as well as personality traits, are necessary to successfully manage work demands. In comparison to the occupational groups of physicians, teachers and nurses, there are fewer studies on bank employees. In particular, these are rarely international comparisons. However, bank employees are an occupational group that face mental stress, e.g., through customer contact. Employees in the banking sector around the world are exposed to very high levels of mental stress. This challenges the supervising occupational physicians to identify mental stress in time and to assess the risk of these mental stresses to employees’ health.

The causes of the declining health in the banking sector should be investigated in this context. Research should be conducted on the stress situation and mental health of bank employees. An intercultural comparison appears useful as in this way it would be possible to identify mental stress at an earlier stage and hazards to employees’ health could be reduced. In all countries in the world, the need for mental disease prevention is very high [9]. There is an imperative need for change in the banking sector in the context of employees’ mental health [1].

For the establishment of health promotion and prevention measures in the banking sector, the first step was to examine the influence of individual behavior in stress situations and the approach to the mental health of bank employees in 2 European countries. It was hypothesized that there would be some national differences.

**MATERIAL AND METHODS**

Overall, 90 (52%) German and 83 (48%) Ukrainian bank employees were interviewed, resulting in a total sample of 173 respondents. Gender distribution of the total sample was as follows: 77.5% were women (N = 134) and 22.5% were men (N = 39), this showing no statistical significance (p = 0.067). The age of the total sample was 37.4±10.0 years (20–61 years). The German bank employees were significantly older than their Ukrainian colleagues (43.2±9.35 vs. 31.1±6.12 years, p < 0.001). A leading position was obtained by 22.5% (N = 39) of the total sample (p = 0.239).

The questions were answered on paper in the national language. The survey was conducted in November 2012–
Table 1. Characteristics of the Differential Stress Inventory (DSI) types [based on 7]

| DSI type                  | Characteristics                                                      |
|---------------------------|----------------------------------------------------------------------|
| I – normal                | all variables in the normal range; average stress levels with successful coping |
| II – overstressed         | above-average everyday stress and existential fears, problems with interactions with other people; high incidence of stress triggers; instrumental and problem-related coping available; prominent external enhancements, possibility of stress chronification |
| III – stress-resistant    | reduced exposure to stress triggers such as everyday life, existential fears and interaction with other people, but little recognition of palliative coping |
| IV – low stress, high coping | under-average exposure to stress triggers, barely any physical or emotional-cognitive complaints, but above-average palliative coping |
| V – high stress, high coping | above-average stress from work and private interaction, but also above-average palliative coping |

June 2014. The following questionnaire inventories were evaluated in order to study the described question:
- the Differential Stress Inventory (DSI) [7],
- the Inventory for Personality Assessment in Situations (IPS) [10],
- the 12-item General Health Questionnaire (GHQ-12) [11,12].

For the DSI and IPS, there are official translations to German and Russian in the standardized test battery of the Vienna Test System (Schuhfried GmbH, Mödling, Austria). There is a validated standardized version of the GHQ-12 in German by Linden et al. [12], and in Russian by Burlachuk et al. [13]. These translations were again critically reviewed by native speakers of German and Russian from the corresponding institutes. All the participants spoke Russian, which is an official language next to Ukrainian.

An intercultural comparison between bank employees from Ukraine and Germany was performed.

**Differential Stress Inventory**

The DSI according to Lefèvre and Kubinger [7] includes statements on 4 stress-related topics (stress triggers, stress manifestation, coping and stress stabilization) taking into account the last 2–3 months. It distinguishes physiological, cognitive and emotional levels of manifestation. Stress triggers include existential worries, problems arising from interactions with other people and stressful everyday situations. A differentiation is made between problem-related (instrumental) and emotional (palliative) coping. High values are preferable as they imply that the coping strategy is chosen properly. Stress stabilization means conditions that maintain or promote stress. Stress stabilization can be prominent internally (e.g., rumination) and/or externally (e.g., secondary sickness benefit). These can lead to stress chronification.

The following DSI types are defined (Table 1): ≥50% of a type corresponds to one type and ≤35% corresponds to another type.

**Inventory for Personality Assessment in Situations**

This questionnaire according to Schaarschmidt and Fischer is based on self-assessments and is used as a personality diagnostic method that records experience and behavior in 15 situations [10]. There are 80 items in total with 4 possible answer levels: “definitely true,” “fairly true,” “not really true” and “not true at all.” These expressions are classified according to the characteristics of personality profiles in particular life areas (A, B and C). Profile 1 is the optimum profile; profile 2 is normal with medium expressions on all scales; from profile 3 onwards, there is a need for intervention while profiles 5 and 6 are
the most problematic. The characteristics of the profiles are shown in Table 2.

**General Health Questionnaire**

Goldberg's questionnaire [11] depicts short-term changes in the state of health. Symptoms such as anxiety, sleep disorders or physical discomfort in the last 14 days are evaluated according to 12 items [12]. Table 3 shows the expression of the items in the context of normal or impaired mental health. The evaluation and classification of the total score of GHQ-12 is based on Goldberg and Williams [14]:

- the GHQ-12 total score of ≤4.0 corresponds to normal mental health (averaged),
- the GHQ-12 total score of ≥5.0 corresponds to impaired mental health (impaired).

**Ethics**

A positive vote of the Ethics Committee of the Medical Faculty of Otto von Guericke University Magdeburg for the study was available (No. 63/13 of May 15, 2013). The survey was voluntary and anonymous. At the time of the survey, the study was based on current guidelines of the Declaration of Helsinki.
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Table 3. Expression of the 12-item General Health Questionnaire (GHQ-12) in context of normal or impaired mental health [based on 11, 12]

| GHQ-12 item                          | normal mental health | impaired mental health                           |
|--------------------------------------|----------------------|--------------------------------------------------|
| Lost sleep over worry                | slept well           | slept worse because of worries                   |
| Constantly under strain              | was not under pressure | had the feeling of being under pressure all the time |
| Able to concentrate                  | can concentrate well  | cannot concentrate well                          |
| Play useful part in things           | was present          | was not present                                  |
| Face up problems                     | felt like they were dealing with their problems | cannot deal with problems                        |
| Capable of making decisions          | no problems with making decisions | had difficulties in making decisions            |
| Could not overcome difficulties      | no problems with coping with difficulties | the impression that they have not been able to cope with the difficulties |
| Reasonable happy                     | felt satisfied        | did not feel satisfied                            |
| Enjoy day-to-day activities          | everyday activities were pursued with pleasure | everyday activities were neglected               |
| Feeling unhappy and depressed        | felt pleased         | felt unhappy and depressed                        |
| Losing confidence in self            | self-confident       | felt a lack of self-confidence                    |
| Thinking of self as worthless        | felt useful          | felt worthless                                    |

Statistical methods
The SPSS Statistics v. 26 software was used for the statistical analyses. It was tested for normal distribution by the Kolmogorov-Smirnov test. Gender and seniority were considered using Fisher’s exact test. Age was determined by means of the Mann-Whitney U test. The Mann-Whitney U test was also used to compare the DSI categories between countries, while Fisher’s exact rest was used for IPS profiles and mental health assessments. Furthermore, the general linear model, i.e., a test for intermediate subjects (the corrected model), was used taking into account gender, the leading position and age followed by the calculation of the effect size [15].

RESULTS
Country comparison of the expression of the DSI categories of bank employees
The national analysis of the DSI categories resulted in less favorable values for the German sample compared to the Ukrainian sample. The gathered results were significantly different (p < 0.001): the main DSI variable stress trigger (German 90.8±14.9 vs. Ukrainian 80.3±16.5) and the secondary variables stress trigger by everyday events (German 43.3±8.4 vs. Ukrainian 34.9±7.7) and by interactions (German 30.9±6.7 vs. Ukrainian 27.9±5.8). Moderate to high effects were found for all 3 covariates together (η² = 0.127–0.154), but one by one there was a moderate effect for the stress trigger by everyday events (η² = 0.064). The other 2 covariates had no influence. Furthermore, the most significant (p < 0.001) differences were found regarding the main variable of stress manifestation and the secondary variables of physical stress manifestation (German 21.3±8.7 vs. Ukrainian 15.2±4.6), and significant differences (p < 0.01) for emotional-cognitive stress manifestation. Moderate to high effects were also found for all 3 covariates together (η² = 0.128–0.189).

The secondary variables of external stress stabilization (German 15.9±6.7 vs. Ukrainian 12.5±3.8) and internal stress stabilization (German 24.0±5.9 vs. Ukrainian 27.0±4.5) were also significantly different between the 2 groups (p < 0.001). The effect sizes were moderate to high for all covariates together (η² = 0.077–0.189).
Considering the gender differences, only mild effects were found for the emotional-cognitive stress manifestation ($\eta^2 = 0.066$). With regard to age, there were also only mild effects for stress stabilization through everyday events and physical stress manifestation ($\eta^2 = 0.064$). Thus, the group differences in the DSI categories relate to nationality.

Distribution of DSI types in Germany and Ukraine

The distribution of DSI types was significantly different in the 2 countries (Table 5). No mixed types were considered as they were not provided for in the DSI manual. Half of the German bank employees and almost a quarter of the Ukrainian colleagues had a normal DSI type. Another 16% of the German and a third of the Ukrainian bank employees were referred to DSI type IV (low stress, high coping), and about 9%

| DSI category | Raw value (M±SD) | p<sup>a</sup> | General linear model – test of inter-subject effects |
|--------------|------------------|--------------|-----------------------------------------------------|
|              | Germany          | Ukraine      | corrected model | age | senior position | gender |
|              |                  |              | R² | p | η² | p | η² | p | η² | p | η² | p | η² | p |
| Stress trigger | 90.8±14.9       | 80.3±16.5   | <0.001 | 0.100 | 0.001 | 0.127 | 0.047 | 0.030 | 0.984 | 0.000 | 0.667 | 0.001 |
| through everyday events | 43.3±8.4      | 34.9±7.8    | <0.001 | 0.128 | <0.001 | 0.154 | 0.003 | 0.064 | 0.231 | 0.011 | 0.377 | 0.006 |
| through interaction | 30.9±6.7      | 27.9±5.8    | <0.001 | 0.105 | 0.001 | 0.132 | 0.074 | 0.024 | 0.146 | 0.016 | 0.549 | 0.003 |
| through fear of existence | 18.0±5.2    | 17.5±4.4    | 0.850 | 0.040 | 0.053 | 0.069 | 0.507 | 0.003 | 0.569 | 0.003 | 0.521 | 0.003 |
| Stress manifestation | 39.8±10.0    | 32.0±8.7    | <0.001 | 0.134 | <0.001 | 0.160 | 0.147 | 0.016 | 0.147 | 0.016 | 0.014 | 0.046 |
| through everyday events | 43.3±8.4      | 34.9±7.8    | <0.001 | 0.128 | <0.001 | 0.154 | 0.003 | 0.064 | 0.231 | 0.011 | 0.377 | 0.006 |
| through interaction | 30.9±6.7      | 27.9±5.8    | <0.001 | 0.105 | 0.001 | 0.132 | 0.074 | 0.024 | 0.146 | 0.016 | 0.549 | 0.003 |
| through fear of existence | 18.0±5.2    | 17.5±4.4    | 0.850 | 0.040 | 0.053 | 0.069 | 0.507 | 0.003 | 0.569 | 0.003 | 0.521 | 0.003 |
| Stress manifestation | 39.8±10.0    | 32.0±8.7    | <0.001 | 0.134 | <0.001 | 0.160 | 0.147 | 0.016 | 0.147 | 0.016 | 0.014 | 0.046 |
| physical | 21.3±8.7  | 15.2±4.6   | <0.001 | 0.154 | <0.001 | 0.180 | 0.003 | 0.064 | 0.195 | 0.013 | 0.095 | 0.021 |
| emotional-cognitive | 19.3±7.5  | 16.8±4.5  | 0.001 | 0.102 | 0.001 | 0.128 | 0.553 | 0.003 | 0.166 | 0.015 | 0.003 | 0.066 |
| Coping | 66.4±10.8 | 68.1±10.0 | 0.205 | 0.128 | <0.001 | 0.154 | 0.693 | 0.001 | 0.120 | 0.018 | 0.134 | 0.017 |
| palliative | 42.3±7.9 | 44.1±7.7 | 0.114 | 0.187 | <0.001 | 0.211 | 0.405 | 0.005 | 0.018 | 0.042 | 0.204 | 0.012 |
| instrumental | 25.0±5.7 | 24.0±4.3 | 0.181 | 0.002 | 0.440 | 0.028 | 0.618 | 0.002 | 0.660 | 0.001 | 0.184 | 0.014 |
| Stress stabilization | 39.0±6.7 | 39.5±6.8 | 0.624 | 0.002 | 0.382 | 0.031 | 0.398 | 0.006 | 0.634 | 0.002 | 0.268 | 0.009 |
| external | 15.9±6.7 | 12.5±3.8 | <0.001 | 0.048 | 0.034 | 0.077 | 0.249 | 0.010 | 0.688 | 0.001 | 0.641 | 0.002 |
| internal | 24.0±5.9 | 27.0±4.5 | <0.001 | 0.164 | <0.001 | 0.189 | 0.010 | 0.050 | 0.635 | 0.002 | 0.124 | 0.018 |

<sup>a</sup> Mann-Whitney U test.

η² < 0.06 (mild effect), η² = 0.06–0.14 (moderate effect), η² > 0.14 (high effect).

Table 5. Distribution of the Differential Stress Inventory (DSI) types taking into account nationality in 69 German and 66 Ukrainian employees in the survey period of November 2012–June 2014 at the locations Magdeburg (Germany) and Kharkiv (Ukraine)

| DSI type | Prevalence<sup>a</sup> [n (%)] |
|----------|---------------------------------|
|          | Germany                        | Ukraine                      |
| I – normal | 35 (50.7)                      | 16 (24.2)                    |
| II – overstressed | 7 (10.1)                    | 2 (3.0)                      |
| III – stress resistant | 10 (14.5)                 | 20 (30.3)                    |
| IV – low stress, high coping | 11 (15.9)                | 22 (33.3)                    |
| V – high stress, high coping | 6 (8.7)                     | 6 (9.1)                      |

<sup>a</sup> Fisher’s exact test p-value 0.002.

No group differences were reported for the DSI category of coping and its secondary variables. The DSI main and secondary variables are shown in Table 4. In summary, in the leading position alone, no differences were found.
of both samples belonged to DSI type V (high stress, successful coping). Nearly 10% of the German sample and only 3% of the Ukrainian sample were amongst DSI type II (overstressed).

**Expression of the IPS categories in Germany and Ukraine**
The national analysis of the IPS categories also revealed highly significant differences in almost all categories (without confrontational tendencies in social conflict situations and health care in alert). The Ukrainian bank employees showed a more favorable attitude here. The results with the correction of the General Linear Model are shown in Table 6. High effects were found in the IPS categories of self-assertion in communication requirements, performance in a leadership role, stability in stressful situations, self-confidence in exam requirements, and career and risk taking in professional situations ($\eta^2 = 0.144–0.207$). The covariate age alone showed the highest effects in the IPS category of activity in a familiar communicative situation ($\eta^2 = 0.233$). With regard to the senior position, there were medium effects on career and risk tolerance in the case of professional demands ($\eta^2 = 0.115$). The DSI type has no relevant influence (a mild influence on self-confidence for exam requirements with $\eta^2 = 0.066$). Gender had no influence on IPS categories.

**Distribution of IPS profiles in Germany and Ukraine**
Table 7 shows the distribution of the IPS profiles in the 2 countries under comparison. Mixed types were not considered. There were significant to highly significant differences in the respective areas. In the area of social and communicative behavior, more German (23.3%) than Ukrainian (2.4%) bank employees were significantly inactive. What is more, 13.3% of the German and only 7.2% of the Ukrainian bank employees were unstable and burdened. More than half of the Ukrainian sample showed inconspicuous profiles A1 and A2, compared to only 37.8% of the German sample. In terms of performance behavior, 23.3% of the German and only 7.2% of the Ukrainian bank employees were less willing to take risks and less career-oriented. In addition, 32.5% of the Ukrainian sample was less engaged, but more self-confident and success-oriented than their German counterparts (5.6%). In the area of health and recreational behavior, one-third of the German bank employees were less able to relax, and less able to take preventive measures, than their Ukrainian colleagues (8.4%).

**Mental health of bank employees in Germany and Ukraine**
Overall, 20% ($N = 18$) of the German sample and only 8.8% ($N = 7$) of the Ukrainian sample reported impaired mental health (Figure 1).

**Mental health of bank employees taking into account DSI types and IPS profiles**
Among the participants with impaired mental health, 16 German and 4 Ukrainian bank employees could be assigned to DSI types. The German sample was divided as follows: 56.3% ($N = 9$) represented DSI type I (normal type), 25.5% ($N = 4$) DSI type II (overstressed), and 18.8% ($N = 3$) DSI type III (stress resistant). The distribution of the Ukrainian sample was similar: 50.0% ($N = 2$) represented DSI type I (normal type), and 25.0% ($N = 1$) DSI type II (overstressed) and DSI type V (high stress, high coping). This result was due to the smaller sample taken up by the authors in the discussion.

Bank employees with impaired mental health could be assigned to the following IPS profiles: without intervention needs (IPS profile A/B/C 1+2) for 16.4% of the German and 33.3% of the Ukrainian bank employees for the area of social and communicative behavior, 16.4% of the German and 60.0% of the Ukrainian bank employees for
Table 6. The Inventory for Personality Diagnosis in Situations (IPS) categories in comparison of the 2 countries under consideration of the general linear model

| IPS category | Stanine (M±SD) | General linear model – test of inter-subject effects |
|--------------|----------------|---------------------------------------------------|
|              | corrected model | age | senior position | DSI type | gender |
|              |                 | p^2 | p | η^2 | p | η^2 | p | η^2 | p | η^2 |
| Germany      | Ukraine         |     |     |     |     |     |     |     |     |     |
| A. Area of social and communicative behavior | | | | | | | | | | |
| A1. Activity in a familiar communicative situation | 4.4±2.0 | 5.8±1.9 | <0.001 | 0.045 | 0.040 | 0.074 | 0.021 | 0.233 | 0.755 | 0.001 | 0.270 | 0.012 | 0.262 | 0.018
| A2. Self-assertion in case of communication requirements | 4.5±1.8 | 5.7±1.9 | <0.001 | 0.118 | <0.001 | 0.144 | 0.131 | 0.017 | 0.002 | 0.069 | 0.043 | 0.031 | 0.868 | 0.000
| A3. Confrontation tendency in social conflict situations | 5.1±1.8 | 4.5±1.8 | 0.500 | 0.003 | 0.457 | 0.277 | 0.264 | 0.010 | 0.455 | 0.004 | 0.435 | 0.005 | 0.987 | 0.000
| A4. Performance in a leadership role | 4.7±2.3 | 6.1±2.1 | <0.001 | 0.183 | <0.001 | 0.207 | 0.115 | 0.019 | 0.005 | 0.059 | <0.001 | 0.093 | 0.605 | 0.002
| A5. Respect for social responsibility | 5.2±2.1 | 5.2±2.0 | <0.001 | 0.016 | 0.193 | 0.045 | 0.703 | 0.001 | 0.935 | 0.001 | 0.065 | 0.026 | 0.200 | 0.013
| A6. Sensitivity to social frustration | 5.3±1.9 | 4.8±2.0 | <0.001 | 0.094 | 0.002 | 0.121 | 0.072 | 0.025 | 0.046 | 0.030 | 0.003 | 0.066 | 0.083 | 0.023
| B. Area of performance behavior | | | | | | | | | | |
| B1. Engagement with high performance requirements | 5.6±1.9 | 4.7±1.9 | <0.001 | 0.067 | 0.011 | 0.094 | 0.759 | 0.001 | <0.001 | 0.092 | 0.812 | 0.001 | 0.735 | 0.001
| B2. Tendency to persist in case of conversion requirement | 5.0±1.9 | 3.6±2.0 | <0.001 | 0.094 | 0.002 | 0.121 | 0.523 | 0.003 | 0.013 | 0.046 | 0.029 | 0.036 | 0.236 | 0.011
| B3. Stability under stressful conditions | 5.2±1.8 | 5.9±1.7 | <0.001 | 0.120 | <0.001 | 0.146 | 0.185 | 0.013 | 0.001 | 0.075 | 0.038 | 0.033 | 0.512 | 0.003
| B4. Self-confidence for exam requirements | 4.6±1.7 | 5.6±1.6 | <0.001 | 0.120 | <0.001 | 0.146 | 0.574 | 0.002 | 0.089 | 0.022 | 0.003 | 0.066 | 0.046 | 0.030
| B5. Career and risk awareness for professional challenges | 4.7±2.0 | 5.9±1.6 | <0.001 | 0.136 | <0.001 | 0.162 | 0.030 | 0.036 | <0.001 | 0.115 | 0.627 | 0.002 | 0.421 | 0.005
| B6. Optimism towards everyday requirements | 4.5±1.9 | 5.5±2.0 | <0.001 | 0.005 | 0.322 | 0.035 | 0.968 | 0.000 | 0.061 | 0.027 | 0.620 | 0.002 | 0.590 | 0.002
| C. Area of health and recreational behavior | | | | | | | | | | |
| C1. Relaxation after the working day | 4.1±1.9 | 5.8±1.9 | <0.001 | 0.093 | 0.002 | 0.121 | 0.005 | 0.059 | 0.548 | 0.003 | 0.058 | 0.027 | 0.411 | 0.005
| C2. Active recovery behavior in leisure time | 4.5±2.1 | 5.5±2.0 | <0.001 | 0.082 | 0.004 | 0.109 | 0.017 | 0.043 | 0.390 | 0.006 | 0.085 | 0.023 | 0.624 | 0.002
| C3. Health care for alert signals | 4.4±1.8 | 6.3±1.5 | 0.500 | 0.111 | 0.001 | 0.138 | <0.001 | 0.090 | 0.879 | 0.000 | 0.155 | 0.015 | 0.702 | 0.001

DSI – Differential Stress Inventory.
* Mann-Whitney U test.
η^2 < 0.06 (mild effect), η^2 = 0.06–0.14 (moderate effect), η^2 > 0.14 (high effect).
This study focuses on the mental health of bank employees in 2 European countries with regard to the attitude of the employees to stressful situations as well as their behavior in such circumstances. It becomes clear that bank employees from different countries have different ways of managing stress. The Ukrainian sample has more favorable values for stress management and better mental health based on the subjective assessment, with both subsamples being independent on the senior position.

**Table 7. Distribution of Inventory for the Personality Diagnosis in Situations (IPS) profiles in comparison of the 2 countries**

| Profile*          | Characteristics                                 | Incidence [n (%)] | p Fisher |
|-------------------|-------------------------------------------------|-------------------|----------|
|                   |                                                 | Germany           | Ukraine  |
| A. Area of social and communicative behavior | active, powerful, stable, respectful           | 11 (12.2)         | 25 (30.1) |
| A1                | inconspicuous                                   | 23 (25.6)         | 21 (25.3) |
| A2                | expansive                                       | 5 (5.6)           | 8 (9.6)  |
| A3                | communicative, but slightly offensive           | 6 (6.7)           | 9 (10.8) |
| A4                | inactive                                        | 21 (23.3)         | 2 (2.4)  |
| A5                | unstable and strained                           | 12 (13.3)         | 6 (7.2)  |
| A6                |                                                 |                   |          |
| B. Area of performance behavior          | engaged, stable, success-oriented and optimistic| 15 (16.7)         | 19 (22.9) |
| B1                | inconspicuous                                   | 25 (27.8)         | 10 (12.0) |
| B2                | little engaged, but self-confident and success-oriented | 5 (5.6) | 27 (32.5) |
| B3                | less career- and risk-orientated                | 21 (23.3)         | 6 (7.2)  |
| B4                | less stable and self-unsure                    | 6 (6.7)           | 2 (2.4)  |
| B5                | little engaged, unstable, self-confident and not success-oriented | 10 (11.1) | 1 (1.2)  |
| B6                |                                                 |                   |          |
| C. Area of health and recreational behavior | relaxing, recreational and preventative        | 10 (11.1)         | 32 (38.6) |
| C1                | inconspicuous                                   | 16 (17.8)         | 26 (31.3) |
| C2                | relaxing and recreational, but little preventive | 9 (10)            | 1 (1.2)  |
| C3                | less able to relax, but in need of recreation   | 19 (21.1)         | 5 (6.0)  |
| C4                | little ability to relax, little need for recreation and little preventive care | 30 (33.3) | 7 (8.4)  |
| C5                |                                                 |                   |          |

* Mixed types were not considered.

the area of performance behavior, and 6.3% of the German and 71.4% of the Ukrainian bank employees for the area of health and recreational behavior. The problematic IPS profiles A/B/C 5+6 were distributed as follows: 65.7% of the German and 16.7% of the Ukrainian bank employees for the area of social and communicative behavior, 25% of the German and 20% of the Ukrainian bank employees for the area of performance behavior, and 93.8% of the German and 0% of the Ukrainian bank employees for the area of health and recreational behavior.

**DISCUSSION**

This study focuses on the mental health of bank employees in 2 European countries with regard to the attitude of the employees to stressful situations as well as their behavior in such circumstances. It becomes clear that bank employees from different countries have different ways of managing stress. The Ukrainian sample has more favorable values for stress management and better mental health based on the subjective assessment, with both subsamples being independent on the senior position.
The results of the subjectively assessed mental health study correspond to the statistical data on diagnosed cases of mental diseases from the corresponding federal offices. For example, the prevalence of depressive disorders in Ukraine was 6.3% in 2015, and the prevalence of anxiety disorders was 3.2% [9]. Exact data on bank employees are not available for Ukraine. The 12-month prevalence of all mental diseases in the German population was 28.5% in the age group corresponding to the German sample [16]. In 2009–2018, the number of days of incapacity for work increased from 51.2 to 120.5 days [17]. No complete data are available for Ukraine. In summary, it can be said that the Germans are more and more affected by mental diseases. In this study, 8.8% of the Ukrainian sample tended to be mentally impaired, while this parameter in the German sample was found to reach 20%. It is also noticeable that the German sample with impaired mental health showed far more DSI and IPS profiles requiring intervention. Nevertheless, the small numbers of health-impaired employees did not allow a reliable assessment of the distribution of psychological characteristics (stress, behavior, and personality) associated with DSI types and IPS profiles. These data should be used with caution and cannot be generalized. This is seen as a limitation of the study. Comparing to other German occupational groups involving contacts with customers or patients, bank employees were preceded by medical assistants (25.6%), nurses (38.8%) and teachers (24.7%) in terms of impaired mental health [18].

This study demonstrates the occupational health relevance of looking at mental stress among employees. The data shows a higher level of stress in banking sectors and also that there is a need *per se* for changes in both countries. The establishment of a company health promotion program that aims to prevent illness, as well as to optimize the well-being of employees and students, is considered to be an approach to solutions. The following basic elements are available in Europe through the implementation of occupational health organizations [6]. Occupational medicine provides contacts to employees who may fall through the classic general practitioner model because those affected do not go to the doctor. Knowledge about individual stress life as well as personal coping with stress is not only relevant for personal well-being and professional success [7], but also for the permanent reduction of work-related stress, which can lead to mental disorders and other diseases. Work-related mental disorders can cause cardiovascular diseases [19], anxiety disorders [20] or depression [21].

In terms of their behavior in stressful situations, bank employees in both countries were found to differ, in some cases even to a highly significant degree (e.g., DSI types, stress trigger through everyday events or interaction, physical stress manifestation, and external/internal stress stabilization). In individuals with daily stress, successful coping (type I) was observed or there was no prominent reaction to stress triggers (type III); however, DSI type III hardly recognizes emotional (palliative) coping. In such a situation, particular measures to promote positive instructions or to carry out a talk could be undertaken. A large number of the Ukrainian bank employees have DSI type IV (low stress/successful coping) or DSI type V (high stress/successful coping). In the German bank employees, these types are slightly less prominent. More specifically, DSI type V shows above-average stress due to work and interactions with other people.
Moreover, preventive measures to reduce stress can be initiated in a targeted manner. It is unclear how long DSI type V can also counteract these high stress levels. Stress reduction seems to be reasonable. A small number of the German and Ukrainian samples belong to DSI type II (overstressed). Here a high expression of stress triggers can be seen, especially through everyday stress and existential fears. In addition, there are also high external enhancers, contributing to the fact that stress is seen as indispensable by the individuals referred to DSI type II and a feeling of helplessness can develop. Stress chronification is also possible. In particular, DSI type II requires the highest priority in prevention and health promotion measures, e.g., a stress management course. In summary, 20% of the German and 12% of the Ukrainian bank employees have DSI types that require intervention. This corresponds approximately to the incidence of impaired mental health. This result shows quite a good condition of staff in the banking sector. Maybe some behavior in stressful situations prevents health from deterioration. Nevertheless, the noticeable persons should receive medical support.

The analysis of the individual DSI categories shows a significantly increased incidence of stress triggers with less prominent coping strategies among the German bank employees. Overall, there is also an increased stress manifestation among the German bank employees, which can lead to various stress symptoms (e.g., pain, nausea, mental continued employment). A noticeable feature of the Ukrainian sample was the higher level of internal stress stabilization, which means that, e.g., there is self-reproach in case of mistakes. In addition, a targeted preventative approach should be seen.

Comparative studies on DSI and other professional groups cannot be found internationally, so the study represents an international comparison of a professional group with customer contact between two European countries. Furthermore, categorizations according to the DSI study can be helpful in evaluation/consultation discussions with employees, as they provide a simple and intuitive understanding of complex phenomena such as stress and how to cope with them. Therefore, other studies that used other instruments were discussed. For example, an effort-reward-imbalance and increased intrinsic overcommitment shows some evidence of mental disorders, with stronger associations being found among women [22]. The risk patterns of work-related behavior and experience are also associated with an imbalance in the reward for effort, chronic stress and reduced mental health [23].

In addition to the survey of stress perceptions and their coping, differences between the German and Ukrainian bank employees were analyzed and confirmed in the areas of social and communicative behavior, performance behavior, and health and recreational behavior. In the area of social and communicative behavior, more than half of the Ukrainian bank employees and nearly 38% of the German ones exhibited favorable behavior. Half of the German sample and about 30% of the Ukrainian sample required intervention assistance, and one-third of the German bank employees were unstable and burdened. A similar picture emerges for performance behavior. Almost half of both samples need intervention. The results in health and recreational behavior are also alarming. Regarding this factor, nearly 16% of the Ukrainian sample and nearly 65% of the German bank employees were in need for intervention. A third of the German respondents had low recreational, relaxation-seeking and preventive abilities, compared with only 8.4% of the Ukrainian ones. These results also underline the importance of health promotion and prevention measures in the workplace setting.

These results confirm the critical stress level in the banking sector described above [1], which is particularly true for the German bank employees. Only 30% of the German bank employees classify themselves as able to recover, so the vast majority do not manage to relax in their free time. These findings are consistent with the results of a former study on work-related stress among bank employees, in which respondents indicated that they were troubled by...
work-related problems at home, as well as did not have sufficient recovery periods [24]. The imbalance of coping stress between the 2 countries, which was described above, suggests that the self-assessment of the respondents in this study was either very uncritical (Ukraine) or supercritical (Germans). It is also possible, however, that the test had a very strong discriminatory aspect in regard to this issue. Finally, the discussion of the comparability of the subjectively assessed mental health of both samples should be held. Studies show a higher use of mental health services in high-income countries such as Germany (from 12.1% of the population), up to 8.7% in middle-to-upper income countries and up to 3.6% in low-income countries [25]. The health care system in Ukraine is an issue that tends to change under the influence of health policy. Thus, the prevalence of mental diseases could be underestimated. Furthermore, the role of religious advisors in mental health care plays a greater role in Ukraine than in Germany (24.9% vs. 12.9%) [21]. This could also reduce the prevalence of mental diseases in Ukraine. For example, one study showed an increased prevalence of depression in the Ukrainian sample aged >50 years [22], while the Ukrainian sample was significantly younger than the German sample.

It seems that the awareness of mental diseases among the younger Ukrainian population has not been so prominent yet. A “not-failure” from the family could be also hidden here. The topic of mental diseases is very stigmatized in Ukrainian society. According to the study results on Russian bank employees, 40.7% of the subjects had preclinical mental disorders. The most frequent were isolation, exaggerated distrust, emotional lability, restlessness and fatigue. It is interesting to comment that those affected by the above symptoms did not feel burdened: they had even described themselves as healthy persons and never sought professional help [26].

The socio-political situation in Ukraine has been very unstable in recent years and the society in general has been under constant stress. Accordingly, it is possible to explain better results in the Ukrainian sample by the fact that work-related stress is not assessed as stress “due to work,” but as a “normal or ordinary condition” due to living conditions. Furthermore, differences between the 2 different banking systems can be found. Many employees thus leave the banking sector after 5–6 years [27]. It could be assumed that psychological problems are tolerated and not discussed. Answering the questionnaire in paper format is considered as another limitation. Answers in the sense of social wanting cannot be excluded. These are most likely to be suspected in the Ukrainian sample. It should also be commented that Ukrainian bank employees are still relatively young, with an average age of around 31 years. Thus, there is also a shorter period of being involved in professional practice, which is one reason for the better results being observed.

Professional experience was not taken into account here. Literature shows that younger people, e.g., students, also suffer from mental health problems [28] and may even develop burnout symptoms [29]. Future studies maybe worthwhile, which analyze employees (regardless of the nation) with impaired health and average health in the context of behavior in stressful situations to identify factors that promote and protect against stress perception.

The described aspects of the issue support the importance of targeted cooperation models in the sense of a company-based supply network via company offers. An integrated health management with occupational physicians, psychotherapists, general practitioners and employee representatives is accepted [30]. Senior managers should be involved in the discussion, and prevention and intervention measures should be offered to increase internal resources for stress and conflict management of bank employees [31]. Although this data does not provide evidence for less favorable levels and behaviors with regard to stressful situations among senior managers, health promotion and prevention programs should also be applied to people in senior positions. There are often excessive obligations and
senior managers are employed in the so-called "sandwich" positions between the employer and non-executive staff, which leads to additional conflicts [26].

CONCLUSIONS
Bank employees from Germany and Ukraine are shown to demonstrate different attitudes to stress and behavior in stressful situations, with the Germans showing less favorable results. This is reflected in the higher incidence of impaired mental health among the Germans who are predominantly referred to DSI and IPS profiles requiring intervention. For both samples, there is a need for the workplace health promotion and preventive programs.

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