

# The Relationship of Occupational Stress, Burnout and Subjective Health Assessment Among Lithuanian Teachers

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**Key Words:** occupational stress, burnout, subjective health, teachers, Lithuania.

**Summary.** The aim of this article is to disclose the relationship of occupational stress, burnout and subjective health assessment among Lithuanian teachers. The theoretical conception of this study is based on the hypothesis that the teachers' occupation is overloaded with stress and the risk of burnout, and all this has a negative effect on the teachers' state of health.

**Methods.** Quantitative data ( $N = 961$ ) are presented in the article, applying factorial and content validation based on a 62 primary items scale and subscales, which measure Lithuanian teachers' occupational stress and burnout. The subjective health assessment scale was created on the basis of 19 clinical signs.

**Results.** At least every third teacher suffered from increased occupational stress (32.65%) and every fourth teacher suffered from burnout (25.1%). Approximately 29% of teachers experienced clinical signs, which show deteriorating health. Occupational stress and burnout correlated with each other ( $r = 0.59$ ;  $p < 0.001$ ) and with health indicators. Burnout was a stronger predictor of teachers' health than stress ( $r = 0.63$  and  $r = 0.50$ ; both  $p < 0.001$ ). The comparable contrast groups of teachers (stressed versus non-stressed and occupationally burnout versus non-burnout) differed significantly by all 19 clinical signs. Those groups were best discriminated by clinical signs of mental health and mental exhaustion.

**Conclusions.** Occupational stress and burnout of teachers are interconnected, constantly affecting different clinical symptoms in the sense of subjective health assessment of teachers. However, burnout is a relatively stronger predictor of the state of health than occupational stress. Teachers are a professional community to which special preventive, social and employment measures could be applied.

## Introduction

Now it is universally acknowledged that permanent stress is the cause of many health disorders. Stress is not the only and probably not the main but a very important cause of many diseases. The negative effect of stress on health is proved by many large and reliable empirical studies (1–4). The World Health Organization predicts that due to a negative effect of stress psychiatric diseases will be most dangerous for mankind in the near future, although cardiovascular diseases and cancer are still considered to be major killers (5). The newest prevention guidelines of the European Society of Cardiology along with such factors as hypertension and smoking, etc. notes psychosocial and behavioural factors, stress among them, as causative factors of cardiological diseases and premature death (6).

Work significantly affects human life and health. Modernisation, along with advantages, also has disadvantages and its own price. It is accompanied by constantly growing stress in all spheres of life. The

tempo of life and work, contemporary media and digital technologies, diversity of consumption stimuli, possibilities and life scenarios, uncertainty of the future, the cult of rivalry and achievements and the crisis of the meaning of life inevitably increase stress (7). All this changes the attitude towards stress and requires possible preventative measures, which are not only medical.

The trivial explanation that stress is a deficit of an adequate response to increasing psychophysical load is obviously too narrow. The clinical consequences of stress are supposed to be the result of the person's interaction with the environment, having in mind not only private environment of the person, but also their professional life, socioeconomic and cultural context, and general well-being or its deficit in the country.

Occupational stress and its impact on health is a separate subject. Long-lasting and strong stress results in professional burnout, destroys working motivation and the sense of happiness and luck in life. In that case, the productivity and the quality of service decrease, which induces a great economic damage. Finally, long-lasting stress at work causes

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occupational and other diseases, restricts the possibilities and the quality of life of an individual and becomes a burden for health and social systems (2, 8–11).

In modern society, such things as a quiet workplace and a stable organisation are non-existent and every worker faces constant stress. However, representatives of certain professions (teachers, nurses, physicians, firefighters, military workers, police officers, etc.) work decades under increased stress and burnout (12–15).

The genesis of the influence of occupational stress on teachers' health is well investigated (16–23). Yet, there is still a lack of data and population studies which could shed more light on the situation in Lithuanian pedagogical community. The situation in Lithuania is interesting in that it represents a specific cluster of European countries, which consists of economically weak post-Soviet countries. The teachers' profession in these countries is characterised by a distinctive 'social profile' and a socio-economic status, which deprives teachers' community and traumatises it psychosocially. Such things as low, socially unfair salaries and pensions (although most employees have university education), hopelessly low prestige, feminisation and ageing of the teachers' profession should be mentioned (24–26). Such phenomena as endless imposed reforms, without any public discourse, some of which are not democratic, wise and even destructive, rivalry and chasing of effectiveness set in the education sector should also be mentioned. Subtle creative criteria of pedagogical work are more and more often replaced by red tape management criteria, which are risky.

Traditionally, a teacher is a representative of a creative profession, but now they are turned into secretaries and red-tapists. Because of mass economically motivated emigration and the low birth rate, Lithuania, like some other Eastern European countries, is falling into a demographic pit. As the number of schoolchildren decreases, teachers' career and employment become unstable and socially insecure. The teachers' occupation becomes low quality, unpopular and undesirable. Such feelings as disappointment and loss of satisfaction with work and life are increasing.

The aim of this article is to present the results on the relationship of occupational stress, burnout and subjective assessment of health among Lithuanian school teachers.

## Material and Methods

### *Study Sample and Its Selection*

The database is comprised of the data obtained from 961 teachers. The teachers were from different schools, i.e., primary, basic, secondary and

gymnasiums. From the geographical point, all administrative territorial regions were represented, rural as well as urban. The age of the respondents was from 23 to 70 (the mean age 43.7 with standard deviation of 10.2 years). The study sample was very asymmetric according to gender: there were only 9.3 % of men. Having in mind the size of the study sample, the diversity of sample slots and their geographical scattering, it can be declared that the study sample represented the target population, i.e., the employed teachers of Lithuania. Lithuania, on the other hand, is a typical representative of Eastern European countries where feminisation and ageing of teachers is also observed. Sampling error was 3.1%, when  $\alpha = 0.05$ .

### *Study Instrument, Its Validity and Reliability*

A newly developed questionnaire ad hoc was used to gain the information from teachers. To measure teachers' stress, 25 primary survey indicators were used (Table 1). The question was as follows: *Here different sources of stress (stressors) are listed, mark them as strong or not strong.* A traditional Likert scale of 5 stages was used for the answers, where 1 meant 'no stress', and 5 meant 'very strong stress'. For measuring burnout of teachers, 37 primary survey indicators (symptoms of burnout) were used and an analogical format of five stages for registering answers – from "strongly disagree" to "strongly agree" (Table 2). Further, a scale of how a person feels in a certain situation was used for subjective health assessment. It consisted of 19 primary indicators that can be treated as clinical symptoms (Table 3). The question was as follows: *A long stay in school often negatively affects the teachers' state of health. Do you feel such symptoms?* Look at the table of symptoms. A four-stages answer format was used: 'no symptoms', 'very rarely', 'quite often', and 'almost constantly'.

### *The Scale of Pedagogical Occupational Stress*

Tests for measuring occupational stress usually are long. It is natural that during primary factorisation the development of a one-dimensional scale was unsuccessful. The content validity of primary items, also very high reliability factors, even though they were not corresponding to the one-dimensional scale, encouraged further development of the scales. Combining the factorial and content validation short subscales were composed (Tables 1 and 2). Psychometric quality of the subscales was acceptable. In the presence of three and more items, the Cronbach alpha criterion was applied. In the subscales of two items, reliability was assessed applying a predictable Spearman Brown coefficient, when the number of items in the current scale is 10. A good quality of the created subscales of stress

Table 1. The Primary Indicators, Psychometric Indices of Subscales and the Correlation (r) of Subscales with Subjective Health Assessment (Clinical Symptoms) Scale; N = 961

Average YES%	Subscale Title	Primary Survey Indicators	Very Strong Stress %	Factor Loading L in Subscale	SB& $\alpha$	r
48.4	Problematic and aggressive parents EV = 79.7%	Relations with parents who absolutely do not care about their children and school.	38.8	0.89	SB = 0.97	0.36*
		Relations with aggressive parents.	58.0	0.89		
44.0	Low salary, public pressure and image EV = 65.0%	Mass media presents a negative, caricature image of teachers.	51.6	0.84	$\alpha = 0.73$	0.38*
		Public pressure.	29.9	0.83		
		Low salary.	50.5	0.74		
41.7	Unmotivated pupils. Children from problematic families. EV = 75.9%	Relations with unmotivated pupils.	49.4	0.87	SB = 0.96	0.36*
		Relations with children from socially problematic families.	34.0	0.87		
36.4	Noisy breaks (quasi subscale with one indicator)	Noisy breaks at school.	36.4	----	----	0.38*
33.5	An enormous workload, constant alterations, inspection of lessons EV = 45.7%	Preparation for the lessons.	16.6	0.70	$\alpha = 0.76$	0.51*
		Inspection of documents.	36.1	0.69		
		Constant alterations.	38.6	0.69		
		An enormous workload.	32.1	0.73		
		External audit.	56.8	0.67		
		The timetable.	21.0	0.56		
23.0	Children with specific needs: capable and incapable. EV = 65.6%	Relations with integrated disabled children.	19.2	0.81	SB = 0.90	0.31*
		Relations with capable children, who are very capricious and require extra attention.	26.8	0.81		
21.2	The pressure of organization and high requirements for teachers. EV = 52.7%	Pressure to participate in projects.	24.8	0.74	$\alpha = 0.70$	0.41*
		Material supply for the class.	23.8	0.67		
		Requirement to improve qualification.	19.9	0.77		
		Requirement to use new teaching technologies.	16.4	0.72		
12.9	Relations with colleagues, administration and active parents. EV = 52.9%	Relations with the head of school.	17.8	0.64	$\alpha = 0.77$	0.37*
		Relations with colleagues.	6.4	0.68		
		Relations with active parents.	12.0	0.74		
		Relations with specialists.	8.7	0.78		
		Relations with the head of school.	19.7	0.78		
32.7	-	-	-	-	-	-

Marking: YES% – average agreement with the statements in the scale %; EV – explained variance of factor model; Spearman-Brown’s predicted reliability (by 10 items);  $\alpha$  – Cronbach-alfa reliability; r – Pearson correlation between the subscale of occupational stress and the scale of clinical symptoms; \*p < 0.001.

and burnout was proofed by high factor loading and high percentage of explained variance in a factorial model.

One subscale was formed of the only variable: the indicator about breaks between lessons, as the stressor, appeared to be important, and therefore was not eliminated.

Thus, *the Scale of Pedagogical Occupational Stress* was formed from 8 subscales. It had a high inter-

nal consistency (Cronbach alpha = 0.89). The mean inter-correlation among 8 subscales r = 0.50, with the minimal correlation 0.34 and the maximal correlation 0.69.

*The Scale of Pedagogical Occupational Burnout*

For measuring the burnout of teachers, a consistent scale (Cronbach alpha = 0.95) was formed from 11 subscales (Table 2).

Table 2. Psychometric Indicators of Occupational Burnout Subscales, Examples of Primary Indicators and the Correlation ( $r$ ) of Subscales with Subjective Health Assessment (Clinical Symptoms) Scale;  $N = 961$

Average YES% (min – max)	Subscale Title	Examples Of Survey Primary Indicators	$N_{item}$	$L_{mean}$ (min&max)	SB& $\alpha$	$r$
41.1 (26.1–49.2)	Taking work stress home EV = 72.5%	Even at home I am tense and stressed because of school problems.	5	0.80 (0.74–0.89)	$\alpha = 0.86$	0.58*
		I am unable to leave all problems at work. I take them home.				
36.3 (25.9–46.9)	Loss of ability to relax and rest. EV = 72.5%	Weekend is not enough to rest.	5	0.85 (0.80–0.90)	$\alpha = 0.91$	0.57*
		Despite long summer vacation I do not get enough rest.				
32.8 (32.5–33.0)	Excessive sleepiness. Slow reaction due to exhaustion. EV = 78.9%	Due to exhaustion my reactions often become slow and I feel excessive sleepiness.	2	0.89 (---)	SB = 0.96	0.58*
		Due to overexertion I suffer from insomnia and constantly lack sleep.				
29.5 (12.9–43.9)	Confusion and dissonance at work. EV = 65.9%	Huge workload at school.	3	0.81 (0.79–0.82)	$\alpha = 0.74$	0.51*
		I get lost because of multitasking and do not know where to begin.				
26.7 (21.1–31.0)	Confusion of moods, loss of joy of life. EV = 72.4%	Work at school exhausts so that it seems there is no joy of life.	3	0.85 (0.84–0.86)	$\alpha = 0.81$	0.57*
		I experience constant change of moods from euphoria to sadness.				
25.8 (19.3–34.1)	Decreased efficiency and effectiveness of work. EV = 64.7%	I work hard but my achievements and results are very insignificant.	5	0.80 (0.73–0.88)	$\alpha = 0.86$	0.51*
		The efficiency and effectiveness of work are decreased.				
20.3 (19.8–20.8)	Postponing important tasks in order to avoid tension. EV = 78.3%	I experience a huge load of work and start postponing important tasks for the future.	2	0.89 (---)	SB = 0.96	0.35*
		I try not to think about work, school and procrastinate important tasks				
19.5 (13.8–35.7)	Reluctance to go to work. Making myself to go to work. EV = 67.9%	Because of occupational fatigue and burnout syndrome it is hard to make myself to go to school.	5	0.82 (0.78–0.84)	$\alpha = 0.88$	0.57*
		I do not want to go to school. I have to make great efforts to make myself go.				
16.5 (15.5–17.4)	Feeling of mental confusion, anxiety and fear to experience mental problems. EV = 81.4%	I sometimes feel I am experiencing mental problems.	2	0.90 (---)	SB = 0.97	0.54*
		I feel that because of occupational stress and fatigue my “roof is going off”.				
15.9 (11.1–23.5)	Loss of control and self-control at work. EV = 72.9%	I am afraid to lose self-control.	3	0.85 (0.83–0.89)	$\alpha = 0.81$	0.45*
		I feel that I do not control the situation at school.				
11.6 (5.0–18.2)	A feeling that co-workers underestimate me and want to hurt me. PS = 74.4%	It seems to me that I am underestimated at workplace.	2	0.86 (---)	SB = 0.95	0.35*
		I think all co-workers are against me and look for occasions to hurt me.				
25.1	---	---	37	---	---	

Marking: (min–max) – minimal and maximal percent of agreement to the statements of the scale;  $N_{item}$  – the number of scale forming statements;  $L_{mean}$  – mean of items factor loading by scale; (min&max) minimal and maximal factor loading; \* $p < 0.001$ .

Table 3. The Results of Discriminant Analysis

Subjective Assessment of Health: Clinical Symptoms	Labelling of Contrast Groups	2 Contrast Groups of Teachers by Occupational Stress; dfl = 1, df2 = 794					2 Contrast Groups by Burnout; dfl = 1, df2 = 794				
		YES %	Mean	diff.	p	SM coeff.	YES %	Mean	diff.	p	SM coeff.
Increased irritability	+	28.2	-0.37	0.75	< 0.001	0.758	24.9	-0.42	0.83	< 0.001	0.696
	-	59.6	0.38				63.8	0.41			
Difficulty to concentrate and keep attention	+	11.6	-0.39	0.74	< 0.001	0.749	8.2	-0.41	0.80	< 0.001	0.677
	-	34.7	0.35				37.6	0.39			
Mood swings	+	20.7	-0.34	0.70	< 0.001	0.709	17.9	-0.40	0.81	< 0.001	0.688
	-	47.3	0.36				50.3	0.41			
Sleepiness, apathy	+	21.8	-0.35	0.68	< 0.001	0.685	18.5	-0.42	0.82	< 0.001	0.676
	-	49.6	0.33				52.3	0.40			
Anxiety and panic attacks	+	9.0	-0.34	0.66	< 0.001	0.657	3.7	-0.44	0.87	< 0.001	0.708
	-	27.0	0.32				31.3	0.43			
Headache	+	34.4	-0.31	0.57	< 0.001	0.557	33.7	-0.30	0.58	< 0.001	0.464
	-	61.5	0.26				61.3	0.28			
Shortness of breath, dyspnea	+	8.3	-0.27	0.54	< 0.001	0.530	8.0	-0.26	0.53	< 0.001	0.414
	-	23.0	0.27				23.6	0.26			
Excessive sweating	+	17.6	-0.26	0.50	< 0.001	0.488	15.2	-0.29	0.56	< 0.001	0.417
	-	36.0	0.24				38.1	0.28			
Dizziness	+	18.2	-0.28	0.49	< 0.001	0.488	15.1	-0.33	0.63	< 0.001	0.487
	-	38.7	0.21				41.5	0.30			
Digestive disorders	+	24.4	-0.28	0.49	< 0.001	0.474	22.4	-0.30	0.61	< 0.001	0.471
	-	45.1	0.21				47.2	0.31			
Loss of appetite	+	8.5	-0.25	0.46	< 0.001	0.452	5.0	-0.32	0.63	< 0.001	0.514
	-	19.7	0.21				21.8	0.31			
Backaches	+	33.4	-0.25	0.42	< 0.001	0.404	34.2	-0.24	0.48	< 0.001	0.375
	-	54.2	0.17				56.1	0.25			
Joint pain and limb numbness	+	21.5	-0.25	0.39	< 0.001	0.385	20.0	-0.24	0.47	< 0.001	0.389
	-	36.7	0.14				40.5	0.23			
Heartache	+	16.9	-0.21	0.37	< 0.001	0.355	12.6	-0.27	0.53	< 0.001	0.405
	-	30.4	0.16				34.6	0.26			
Increased appetite and snacking	+	23.4	-0.22	0.37	< 0.001	0.351	22.6	-0.21	0.41	< 0.001	0.305
	-	35.6	0.15				38.3	0.20			
Heart palpitations	+	17.6	-0.20	0.36	< 0.001	0.351	13.7	-0.28	0.55	< 0.001	0.427
	-	30.8	0.16				36.0	0.27			
Heartburn	+	19.5	-0.18	0.34	< 0.001	0.333	21.1	-0.16	0.32	< 0.001	0.222
	-	32.7	0.16				31.3	0.17			
Hypotension	+	19.1	-0.15	0.28	< 0.001	0.267	18.1	-0.15	0.33	< 0.001	0.260
	-	27.1	0.13				29.6	0.18			
Hypertension	+	26.5	-0.12	0.18	< 0.001	0.175	25.4	-0.13	0.23	< 0.001	0.196
	-	32.8	0.06				33.1	0.11			
Average meanings	+	20.0	-0.26	0.49	---	---	17.9	-0.29	0.57	---	---
	-	38.0	0.23				40.4	0.29			
Model characteristics		Eigenvalue = 0.28; Canonical correlation coeff. = 0.47; Wilks' Lambda = 0.781; Correct classification – 69.7%; Group centroids 'low stress' minus (0.53; 'high stress' – plus (0.53).					Eigenvalue = 0.46; Canonical correlation coeff. = 0.56; Wilks' Lambda = 0.687; Correct classification – 74.6%; Group centroids 'mild burnout' – minus (0.67); 'strong burnout' – plus (0.68).				

Markings: + 'low stress' and 'mild burnout'; - 'high stress' and 'strong burnout'; YES% – average agreement with the statement in the scale %; Mean – the averages of groups in z-scale; diff. – differences of group means; SM coeff. – structural matrix coefficient.

### *The Scale of Subjective Health Assessment*

When such an indicator as 'hypotension' was eliminated from 19 clinical symptoms, a psychometric scale to assess teachers' subjective health was developed. The internal consistency of that scale was high: Cronbach alpha = 0.89, Spearman Brown = 0.83, and correlation between two parts of the test was 0.71. An average inter-correlation among 11 subscales  $r = 0.63$ , with the minimal correlation 0.40, and the maximal correlation 0.79.

Finally, two united scales (scale of occupational stress and scale of burnout) and their subscales were transformed into a standard z-scale of normal distribution. Thus, 19 primary indicators, used for the subjective assessment of teachers' health, were also transformed into an analogical z-scale. All the transformed scales and values of primary variables were close to normal distribution.

### *Ethical Considerations*

This anonymous survey was based on international ethical standards that apply for social surveys, i.e., ICC/ESOMAR International Code on Market, Opinion and Social Research and Data Analytics (27).

### **Statistical Analysis**

For making the scales, as mentioned above, the factorial analysis, a method of principal components was used. For the definition of measurable variables in the target population, such an index as consent percent was used (YES%) by adding percentage frequency in two last categories of the Likert scale. It is appropriate to derive an average percent of agreement with the statements of an adequate subscale as YES percent statements are not less informative than traditional Likert scale average indicators, but much more understandable and more smoothly interpreted (28). Due to a high correlation of the scales and the subscales, it was refused to apply a multiple regression. Only the meanings of correlation factors were counted. Specifically, it was counted how each subscale of occupational stress and burnout correlated with the scale of clinical symptoms.

Later, a discriminant analysis was applied. It was investigated how 19 clinical symptoms discriminated contrast groups of teachers. Applying the median criteria, contrast groups of teachers were formed from the stress and burnout united scales. The teachers were divided into the following: a) *stressed* and *non-stressed*; b) *mild burnout* and *strong burnout*. The application of the contrast metaphor is reasonable. A distance between the average number of contrast groups in the *stress* scale is 1.58 of the z-scale, while that in the *burnout* scale is 1.61 points in the z-scale. Confidence intervals do not overlap even when  $\alpha = 0.001$ . Thus, the distance between

the mean numbers reaches almost two standard deviations. The revision of equality of group means was done using Wilks' Lambda test, which is applied in the discriminant analysis. Age variable was also included into the analysis: a) variable metric, and b) ordinal variable (up to 30 years, 31–40 years, 41–50 years and 51 and more).

### **Results**

It was noted that every third teacher (32.7%) constantly experienced occupational stress. Different stressors affect teachers to different degrees, which was demonstrated by the average agreement percent in different stressor groups (Table 1). Every fourth teacher (25.1%) experienced symptoms of occupational burnout (Table 2, in which symptoms are shown in the order of rating). More than one-fourth of the teachers (29.0%) felt different clinical symptoms. That was the average agreement percent to 19 symptoms, which were noted in the subjective health assessment scale.

Fewer teachers suffered from occupational burnout than from stress, but burnout was a stronger predictor of clinical symptoms than stress. The correlation between 'occupational burnout' and the united scale of clinical symptoms was  $r = 0.63$ ;  $p < 0.001$ . An analogous indicator between the united stress scale and the united scale of clinical symptoms was smaller, i.e.,  $r = 0.50$ ;  $p < 0.001$ . An analogous tendency can be noted while analysing the correlation with clinical symptoms in all subscales.

It appeared that in the contrast groups, i.e., a) stressed versus non-stressed and b) strong burnout versus weak burnout, the teachers differed greatly by all 19 clinical symptoms. What is more, this conclusion was statistically very reliable (Table 3).

Very important indicators were the agreement percent (YES%) and the standardised z-scale of values and its importance in the compared contrast groups. In the low stress group, an average agreement percent in 19 clinical symptoms was 20.03. It varied between 8.3 and 34.4. In the high stress group, an analogous index was almost twice higher, up to 38.03 and varied between 19.7% and 61.5%. The average variation between the groups was 0.49 points and among all 19 symptoms it varied between 0.18 and 0.75 points.

Further, in the group of the weak burnout, the average percent of agreement with clinical symptoms reached 17.9% and varied between 5% and 34.2%. In the group of strong burnout, the average percent of agreement with 19 clinical symptoms increased more than twice and was 40.4%, ranging from 21.8% to 63%. The average distance between the averages of groups was 0.57 z-scale points and varied from 0.23 to 0.87 in 19 symptoms.

It was appropriate to determine which clinical

symptoms best discriminated the contrast groups of the teachers: the low stress and the strong stress teachers' groups and the weak burnout or the strong burnout groups. The question could also be formulated in another way: according to which clinical symptoms could contrast groups be differentiated?

The question was answered by the results of the discriminant analysis (Table 3). The most eloquent indicator in this aspect was the coefficient of the structural matrix. The closer to 1 the coefficient gets, the better the discriminant function separates the contrast groups according to a certain clinical symptom. This coefficient is interpreted as factor loading.

In the stress and burnout groups, the rate of clinical symptoms was almost identical according to their discriminant capacity. It was witnessed by a very high correlation of factors between two rank columns, i.e., two columns of structural matrix coefficients from Table 3. They were correlated as the range. When  $N = 19$ , the Pearson correlation  $r = 0.94$ , the Spearman  $\rho = 0.88$ ; in both cases  $p < 0.001$ . Both contrast groups were most strongly discriminated by the clinical symptoms of psychiatric health.

It was found out that neither occupational stress nor burnout were affected by the teachers' age and they only partially affected the assessment of health. Even if the sample size was increased tenfold, the relation between burnout and age would not be found. Since such a result was theoretically unexpected, it was re-checked by four methods: a) correlation analysis; b) one way ANOVA; c) Kruskal-Wallis; and d) crosstabs, chi-square. It was concluded that, only on the basis of health variable, age could be considered as a predictor, but really not a very strong one. The subjective health assessment becomes a little worse in relation to age; otherwise, clinical symptoms become more pronounced ( $r = 0.11$ ;  $p = 0.009$ ). When applying other tests mentioned above, not strict statistical reliability was achieved ( $p \leq 0.05$ ), the tolerance of which, when the sample size was relatively large, was not very acceptable. In the chi-square test, the reliability was really not quite sound (chi-square 5.587;  $df = 3$ ; Cramers's  $V = 0.10$ ;  $p = 0.134$ ).

### Discussion

Increased stress in the teachers' occupation is universally acknowledged. This population study on teachers' occupational stress, burnout and subjective health assessment showed that fewer teachers suffered from burnout than from occupational stress, but burnout was a stronger predictor of clinical symptoms than stress.

There was no basis for the statement that teachers' age was related with increased occupational stress or burnout, which means that teachers become victims of occupational stress and burnout independently of

age. Only subjective assessment of health worsens with age and possibly the real state of health (29). It is quite understandable that in future the investigation into the relationship between teachers' stress and the degree of burnout with health indicators should be expanded. The needed information about could be generated from anamneses, case histories and objective clinical data about the objective state of health of survey participants.

In this study, occupational stress and burnout affected very different clinical symptoms and these findings were statistically significant. The data of discriminant analysis showed that occupational stress and burnout primarily affected mental health of teachers and provoked mental exhaustion. Indicators, which weakly separated teachers' groups of low stress and strong stress should be associated with such indicators as elevated or decreased blood pressure, which is a serious clinical symptom. Therefore, it should not be considered weak. Of 19 symptoms, all are determined subjectively, except two blood pressure readings, which are determined objectively, using a blood measurement device. Thus, the finding that blood readings could be insignificant must be viewed as a side effect of survey type studies. Worse suitability of blood pressure variables was also shown by psychometric analysis: if those two variables are excluded, the inner consistency of the scale improves.

A broader view at occupational stress and burnout, their socioeconomic and sociocultural determination promotes understanding that effective overcoming of occupational stress and burnout is linked with complex integrated tools. Data found about stress and burnout incidence rate in the professional community of Lithuanian teachers and about their negative impact on health, in our opinion, have an applied meaning and significance to the politics of health, social and employment politics and the specific measures undertaken. The representatives of this profession in some countries have a right to retire earlier, have a longer vacation and have a specific system of workload. The earlier retirement has also been discussed in the Lithuanian Parliament, but some law making suggestions have been rejected because of economic reasons. Currently, after the introduction of new neoliberalist Labour Code of the Republic of Lithuania, the risk that no attention will be paid to the specifics of teachers' work arises.

A separate theme of occupational stress and burnout prevention and coping with it is the curriculum of pedagogical students. Judging by the data collected by the authors, the preparation of educators in Lithuania includes the subject of students' stress, but they are not taught how to cope with teachers' stress and how teachers should avoid burnout (25, 26).

In the context of empirical findings of this study, it is meaningful to talk not only about recommendations at the macro level, but also about interventional measures at the mezzo level. A lot can be done at the level of a certain school or network of schools. We have in mind such a theoretical concept and social practice as socially responsible work organisation. In turn, it is related to a distinctive organisational culture, where along with social justice, environmental protection and non-discrimination tasks, the organisation sets itself tasks to ensure care of employees' health and work safety, healthy social climate, and finally the orientation towards "economics of happiness" of all society.

## References

- Mielczarek A, Kasprzak JD, Marcinkiewicz A, Kurpesa M, Uznańska-Loch B, Wierzbowska-Drabik K. Broken heart as work-related accident: occupational stress as a cause of takotsubo cardiomyopathy in 55-year-old female teacher – role of automated function imaging in diagnostic workflow. *Int J Occup Med Environ Health* 2015;28(6):1031-4. doi:10.13075/ijom.1896.00564.
- Paton N. Evolution of occupational health 4: Making health a work priority. *Occup Health* 2015;67(12):11-3.
- Von Känel R, Bellingrath S, Kudielka BM. Overcommitment but not effort-reward imbalance relates to stress-induced coagulation changes in teachers. *Ann Behav Med* 2009;37(1):20-8. doi:10.1007/s12160-009-9082-y.
- Zurlo M, Pes D, Capasso R. Personality Characteristics, Job Stressors, and Job Satisfaction: Main and Interaction Effects on Psychological and Physical Health Conditions of Italian Schoolteachers. *Psychol Rep* 2016;119(1):27-38.
- Health impact of the psychosocial hazards of work: an overview. WHO [cited 2018 Jan 23]. Available from: URL: [http://www.who.int/occupational\\_health/publications/hazardpsychosocial/en/](http://www.who.int/occupational_health/publications/hazardpsychosocial/en/).
- Piepoli MF, Hoes AW, Agewall S, Albus C, Brotons C, Catapano AL, et al. 2016 European Guidelines on cardiovascular disease prevention in clinical practice: The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of 10 societies and by invited experts): Developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR). *Eur Heart J* 2016;37:2315-2381. doi:10.1093/eurheartj/ehw106.
- Boucekkine R, Hritonenko N, Yatsenko Y. Health, work intensity, and technological innovations. *J Biol Systems* 2014;22(2):219-33.
- Bogaert I, De Martelaer K, Deforche B, Clarys P, Zinzen E. Associations between different types of physical activity and teachers' perceived mental, physical, and work-related health [cited 2018 Jan 23]. *BMC Public Health* 2014;14(1):1492-511. doi:10.1186/1471-2458-14-534. Available from: URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4066273>.
- Kovač M, Leskošek B, Hadžić V, Jurak G. Occupational health problems among Slovenian physical education teachers [cited 2018 Jan 23]. *Kinesiology* 2013;45(1):92-100. Available from: URL: <https://pdfs.semanticscholar.org/6683/077f95df9cb20af2c6881159d37bab04e26d.pdf>.
- Kovess-Masféty V, Sevilla-Dedieu C, Rios-Seidel C, Nèrière E, Chan Chee C. Do teachers have more health problems? Results from a French cross-sectional survey [cited 2018 Jan 23]. *BMC Public Health* 2006;6:101. doi:10.1186/1471-2458-6-101. Available from: URL: <https://bmcpublihealth.biomedcentral.com/articles/10.1186/1471-2458-6-101>.
- McCarthy C, Lambert R, Lineback S, Fitchett P, Baddouh P. Assessing Teacher Appraisals and Stress in the Classroom: Review of the Classroom Appraisal of Resources and Demands. *Educational Psychology Review* 2016;28(3):577-603.
- Arvidsson I, Håkansson C, Karlson B, Björk J, Persson R. Burnout among Swedish school teachers – a cross-sectional analysis [cited 2018 Jan 23]. *BMC Public Health* 2016;16:1-11. doi:10.1186/s12889-016-3498-7. Available from: URL: <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-016-3498-7>.
- Chan A, Chen K, Chong E. Self-reported Stress Problems among Teachers in Hong Kong. *AIP Conference Proceedings* 2010;1285(1):420-34.
- Alexandrova-Karamanova A, Todorova I, Montgomery A, Panagopoulou E, Costa P, Baban A, et al. Burnout and health behaviors in health professionals from seven European countries. *Int Arch Occup Environ Health* 2016 Oct;89(7):1059-75. doi:10.1007/s00420-016-1143-5.
- Selmanovic S, Ramic E, Pranjić N, Brekalo-Lazarević S, Pasić Z, Alic A. Stress at work and burnout syndrome in hospital doctors. *Med Arch* 2011;65(4):221-4.
- Fisher MH. Factors Influencing Stress, Burnout, and Retention of Secondary Teachers. *Current Issues in Education* 2011;14(1):1-37.
- Kidger J, Brockman R, Tilling K, Campbell R, Ford T, Araya R, et al. Teachers' wellbeing and depressive symptoms, and associated risk factors: A large cross sectional study in English secondary schools [cited 2018 Jan 23]. *J Affect Dis* 2016;192:76-82. doi:10.1016/j.jad.2015.11.054. Available from: URL: <https://www.sciencedirect.com/science/article/pii/S016503271530762X?via%3Dihub>.
- Klusmann U, Kunter M, Trautwein U, Lüdtke O, Baumert J. Engagement and emotional exhaustion in teachers: Does the school context make a difference? *Applied Psychology: An International Review* 2008;57:127-51.
- López JMO, Bolavo CC, Mariño MJS. Exploring Stress, Burnout, and Job Dissatisfaction in Secondary School Teachers [cited 2018 Jan 23]. *International Journal of Psychology and Psychological Therapy* 2010;10(1):107-23. Available from: URL: <https://www.ijpsy.com/volumen10/num1/253/exploring-stress-burnout-and-job-dissatisfaction-EN.pdf>.
- Mouza A, Souchamvali D. Effect of Greece's New Reforms and Unplanned Organizational Changes on the Stress Levels of Primary School Teachers. *Social Indicators Research* 2016;128(2):981-94.
- Narayanappa S, Manjunath R, Kulkarni P. Metabolic Syndrome among Secondary School Teachers: Exploring the Ignored Dimension of School Health Programme [cited 2018 Jan 23]. *J Clin Diagn Res* 2016;10(4):10-14. Available

## Conclusions

The teachers' population survey revealed that occupational stress and burnout are interconnected. More to that, they both constantly affect different clinical symptoms in the sense of subjective health assessment of teachers although burnout is a relatively stronger predictor of the state of health than occupational stress. Macro level improvements of teachers' working conditions as well as interventional measures at the mezzo level are of high importance. There is a need for further comprehensive studies that will examine the relationship between teachers' stress and the degree of burnout with health indicators.



- from: URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4866134/>.
22. Wei-Chih C. Leisure participation, job stress, and life satisfaction: moderation analysis of two models. *Social Behavior & Personality: An International Journal* 2016;44(4):579-88.
  23. Zurlo MC, Pes D, Cooper CL. Stress in teaching: a study of occupational stress and its determinants among Italian schoolteachers. *Stress & Health: Journal of the International Society for the Investigation of Stress* 2007;23(4):231-41. doi:10.1002/smi.1141.
  24. Stutzer A, Frey BS. Recent Developments in the Economics of Happiness: a Selective Overview. In: *Recent Developments in the Economics of Happiness*, ix-xxiii. Cheltenham; 2013 [cited 2018 Jan 23]. Available from: URL: <http://ftp.iza.org/dp7078.pdf>.
  25. Bubeliene D, Merkys G. The attempt to view pedagogues' occupational stress in a complex way: data of the empirical research [in Lithuanian] [cited 2018 Jan 23]. *Teacher Education* 2010;14(1):88-102. Available from: URL: <https://core.ac.uk/download/pdf/51899358.pdf>.
  26. Bubeliene D. Teachers' occupational stress and presumptions of its reduction by education management and educational means. Doctoral dissertation. Social sciences, education (07 S). Siauliai: Siauliai University; 2010.
  27. ICC/ESOMAR International Code on Market, Opinion and Social Research and Data Analytics. Available from: URL: [https://www.esomar.org/uploads/public/knowledge-and-standards/codes-and-guidelines/ICCESOMAR\\_Code\\_English\\_.pdf](https://www.esomar.org/uploads/public/knowledge-and-standards/codes-and-guidelines/ICCESOMAR_Code_English_.pdf).
  28. Borg I, Gabler S. Zustimmungssanteile und Mittelwerte von Liker-skalierten Items [cited 2018 Jan 23]. *ZUMA Nachrichten* 2002;26(50):7-25. Available from: URL: <http://nbn-resolving.de/urn:nbn:de:0168-ssoar-207887>.
  29. Bubelienė, D, Merkys, G. Occupational Stress and Its Impact on Teachers' Health: Survey Results. *Health Sciences in Eastern Europe / Health Sciences* 2016;26(6):58-64.

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