

## EXPOSURE TO MENTAL LOAD AND PSYCHOSOCIAL RISKS IN KINDERGARTEN TEACHERS

### IZPOSTAVLJENOST PSIHIČNEMU NAPORU IN PSIHOSOCIALNIM TVEGANJEM PRI VZGOJITELJIH V VRTCIH

Robert ČECHO<sup>1\*</sup>, Viera ŠVIHROVÁ<sup>1</sup>, Dominika ČECHO<sup>1</sup>, Martin NOVÁK<sup>1</sup>, Henrieta HUDEČKOVÁ<sup>1</sup>

<sup>1</sup>Comenius University Bratislava, Jessenius Faculty of Medicine in Martin, Department of Public Health, Malá Hora 4B, 03601 Martin, Slovakia

Received: Jan 31, 2019  
Accepted: May 24, 2019

Original scientific article

#### ABSTRACT

#### Keywords:

kindergarten teachers, questionnaire of psychosocial risks, occupational stress, psychosocial risks, workload

**Introduction:** Published research studies in Central Europe have been mostly oriented toward occupational stress among schoolteachers. The aim of this study is to investigate the level of occupational stress in kindergarten teachers and to specify psychosocial risks associated with their work.

**Methods:** The study was conducted by using a Meister questionnaire and a Psychosocial risk questionnaire. The data collection was obtained from kindergarten teachers in 2017. The survey link with request was sent to participants via email. A total 287 questionnaires from 67 kindergarten schools were collected.

**Results:** 192 (66.9%) teachers perceived their work as mentally burdensome. Teachers who perceived their work as mentally non-burdening were more likely to report autonomy in their work ( $p=0.001$ ), fair performance evaluation ( $p=0.010$ ), sufficient family time ( $p=0.005$ ), a health-protected workplace ( $p=0.000$ ) and absence of violence and bullying ( $p=0.042$ ). Teachers with a university degree perceiving work as mentally burdensome reported that their work was not adequately assessed ( $p=0.034$ ). Teachers over 45 years of age with school practice of over 20 years reported injustice in evaluating work performance against younger colleagues ( $p=0.000$ ).

**Conclusion:** Kindergarten teachers reported overloading, time pressure, and high responsibility, but considered their work interesting. However, changing the way teachers work in schools can reduce teacher resignation and improve teachers' well-being.

#### IZVLEČEK

#### Ključne besede:

vzgojitelji v vrtcu, vprašalnik o psihosocialnih tveganjih, poklicni stres, psihosocialna tveganja, delovna obremenitev

**Uvod:** Objavljene raziskovalne študije v Srednji Evropi so bile večinoma usmerjene v poklicni stres med učitelji. Cilj te študije je bil raziskati stopnjo poklicnega stresa pri vzgojiteljih v vrtcih in določiti psihosocialna tveganja, povezana z njihovim delom.

**Metode:** Študija je bila izvedena z uporabo vprašalnika Meister in vprašalnika o psihosocialnih tveganjih. Podatki so bili zbrani od vzgojiteljev v letu 2017. Udeleženci so povezavo do ankete z zahtevo prejeli preko elektronske pošte. Zbranih je bilo 287 vprašalnikov iz 67 vrtcev.

**Rezultati:** 192 (66,9 %) vzgojiteljev razume svoje delo kot psihično obremenjujoče. Za vzgojitelje, ki svoje delo dojemajo kot psihično neobremenjujoče, je bolj verjetno, da bodo poročali o samostojnosti pri svojem delu ( $p = 0,001$ ), poštenu oceni uspešnosti ( $p = 0,010$ ), dovolj časa z družino ( $p = 0,005$ ), varovanju zdravja na delovnem mestu ( $p = 0,000$ ) ter odsotnosti nasilja in ustrahovanja ( $p = 0,042$ ). Vzgojitelji z univerzitetno izobrazbo, ki dojemajo delo kot psihično obremenjujoče, so poročali, da njihovo delo ni bilo ustrezno ocenjeno ( $p = 0,034$ ). Vzgojitelji, starejši od 45 let in z več kot 20 let prakse, so poročali o nepravilnosti pri ocenjevanju delovne uspešnosti v primerjavi z mlajšimi kolegi ( $p = 0,000$ ).

**Zaključek:** Vzgojitelji v vrtcu so poročali o preobremenitvi, časovnem pritisku, visoki odgovornosti, vendar so menili, da je njihovo delo zanimivo. Vendar pa lahko s spremembo načina dela učiteljev v šolah zmanjšamo odpovedi učiteljev in izboljšamo njihovo počutje.

\*Corresponding author: Tel. + 421 908 300 397; E-mail: [cecho2@uniba.sk](mailto:cecho2@uniba.sk)

## 1 INTRODUCTION

The evaluation and revealing of occupational stress has a crucial preventing role in securing health and safety in the workplace. Teaching is an occupation that high demands in terms of mental and emotional workload. Work-related stress in the education sector is on the rise due to higher job requirements and personal demands (1). Also, many unfavourable characteristics are linked to the teaching profession (e.g. a higher proportion of female, retired teachers; a lower percentage of graduates, who want to become teachers) (2). Teachers' mental health is affected by cumulative effects of stressors on micro (occur on daily basis, e.g. life-changing events, daily hassles) and macro level (occur at the level of social system above the individual). Therefore, exhaustion and overload in teachers predict a higher risk of burnout (3).

Teachers without the emotional resources to cope with job stressors have a poorer well-being with possible negative outcomes (e.g. fatigue, absenteeism, poor health or turnover) (4). Teacher stress has a strong research base, but many published studies have been strongly oriented toward primary and secondary school teachers. Unfortunately, there are very few studies in Slovakia regarding analysis of work-related stress among kindergarten teachers.

Long-term occupational stress is associated with a number of health issues (5); potential outcomes also include absenteeism from work and, thus, financial losses (6). Teaching is a helping profession that is associated with higher job demands for mental abilities, communication skills, and social interaction (7). Teachers' occupational stress is a worldwide phenomenon that includes various stress sources (8). Unattractiveness of the profession, feminisation of the teaching profession, low salary, and inappropriate working conditions are the most common problems the teaching profession in Slovakia faces. Issues with the distribution of work tasks, the demands of communication skills, increased emotional regulation and professionalism in all areas have resulted in a decrease of teacher numbers (9).

The aim of this article is to investigate the level of occupational stress in kindergarten teachers and to specify the psychosocial risks associated with their work.

## 2 METHODS

Accordingly, to the school database in Slovakia a total of 335 public, private and Catholic kindergartens and 2005 kindergarten teachers in the Žilina region were registered in 2017 (10). A cross-sectional epidemiological design of study was used. The survey was conducted by sending consent forms via email with a link requesting for the

questionnaires to be completed. Internet-based survey is a modern scientific methodology for health-related research that includes many advantages (e.g. gathering data, anonymity of respondents). The survey was anonymous, and attendance was optional. The survey invitation was randomly sent to every other kindergarten school. It was sent to 168 from a total of 335 kindergartens in the Žilina region. 49 kindergartens refused to participate due to personal reasons (e.g. kindergarten school reconstruction). In total, 67 kindergartens (56.3%) were interested in participating and completed questionnaires; 52 kindergartens school did not complete questionnaires. 297 completed questionnaires were received (287 women and 10 men). Considering only a few men are employed at kindergarten schools, we decided to include an analysis of women only. The data was obtained from March to October 2017. Selected socio-demographics characteristics included gender, age, education level achieved and years of experience. Perceived individual-level of occupational stress was assessed by a Meister questionnaire and a modified questionnaire of psychosocial risks. The Meister questionnaire provides mental load evaluation among discrepant occupations. A Slovak version of the questionnaire is validated and approved by the Slovak Ministry of Health (11). Modifications of the questionnaire were also adapted in Central European countries, e.g. in the Czech Republic and Poland (12, 13). Both versions were characterized by acceptable accuracy and internal consistency rates (Cronbach Alpha >0.77) (12, 14).

The Meister questionnaire determines three dimensions (subscales) of mental load (Overload, Monotony and Unspecific Load). Mental load consists of 10 closed items, including different characteristics of work (Time pressure, Low satisfaction, Great responsibility, Dull work, Problems and conflicts, Monotony, Nervousness, Oversaturation, Fatigue, Long-lasting load). A statistical evaluation of the results employs the calculation of the medians for items found to express the measure of agreement/disagreement on the 5-grade scale (1-5; "1 - strongly disagree"; "2 - mildly disagree"; "3 - neutral"; "4 - mildly agree"; "5 - strongly agree"). Results can be analysed based on an individual or group level. Median values of dimensions can be compared with normalized values proposed by Židková (14) (evaluation method is accessible on <https://zdenka-zidkova-psvz.webnode.cz/metody/>).

A psychosocial risks questionnaire was developed and approved by the National Institute of Public Health in Prague (NIPH) in 2012. The questionnaire consists of 10 close-ended questions with a dichotomous scale (yes/no). The Czech version is accessible on <http://www.szu.cz/tema/pracovni-prostredi/kampan-slic-psycho-socialni-rizika-na-pracovisti?lang=1> (15). The survey tool was created due to the participation of the Czech Republic in the SLIC campaign conducted by EU-OSHA (16, 17).

Inspectors realized that surveillance at workplaces on a national level by using Psychosocial risks questionnaire. The questionnaire is in certification progress by NIPH in Prague. The Slovak version was characterized by acceptable reliability measured by split-half reliability (0.62). The internal consistency was 0.69, measured by Kuder-Richardson 20.

The average and median were calculated to make further comparison of our results with Meister population norms (14). Relative variables (%) were calculated to interpret psychosocial risks. Subsequently, according to teachers' perception of their own work (Meister questionnaire item: "My work is mentally so demanding that it probably can't be done for years with the same performance"), they were divided in two categories (mentally demanding; not mentally demanding). The general linear model (t-test) and non-linear (Chi-square test) were employed. Data analysis was performed by using SPSS-24; the results of all the tests were considered statistically significant whenever their p-value was lower than 0.05.

### 3 RESULTS

The sample size included 287 kindergarten teachers. The largest group of respondents was aged 45 and older (Table 1). Over 50% of kindergarten teachers reached higher education (n=161; 56.1%). Also, a substantial number of kindergarten teachers had twenty or more years of experience (n=147; 51.2%). A significant proportion of teachers with middle education were older than 45 years. In contrast, more teachers with higher education worked for less than 20 years.

A Meister individual analysis is shown in Table 2A and an evaluation of each question is shown in Table 2B. Results showed that 123 teachers (42.8%) reached the 3rd degree of workload, while 246 (85.7%) kindergarten teachers felt overloaded from work. According to Meister, the possibility of health consequences in this degree of load cannot be excluded. Table 2B shows that critical limits of medians were exceeded in overloading factor. Meister's analysis also demonstrates that kindergarten teachers negatively perceived lack of time, great responsibility, problems and conflicts at work and fatigue. Moreover, these sources of stress mostly caused them performance decrease and bad feelings about their work as well. Monotony of work and unspecific stress response were reported mostly positive, thus, it occurred in their work sporadically.

**Table 1.** Kindergarten teachers - demographic characteristics.

		Total (N=287) N (%)	Middle education (N=126) N (%)	Higher education (N=161) N (%)	p value
Age	<35 years	72 (25.1)	17 (13.5)	55 (34.2)	0.0001 <sup>a</sup>
	35 - 45 years	73 (25.4)	21 (16.7)	52 (32.3)	
	>45 years	142 (49.5)	88 (69.8)	54 (33.5)	
Years of experience	<20 years	140 (48.8)	33 (26.2)	107 (66.5)	0.0001 <sup>a</sup>
	>20 years	147 (51.2)	93 (73.8)	54 (33.5)	

<sup>a</sup>p<0.05 (chi-square test)

**Table 2.** Meister questionnaire evaluation (Kindergarten teachers N=287).**Table 2A.** Individual items analysis - degree of workload.

Degree of workload	I. Overloading		II. Monotony		III. Unspecific load	
	N	%	N	%	N	%
0	41	14.3	283	98.6	250	87.1
1	57	19.9	3	1.0	25	8.7
2	66	23.0	1	0.4	6	2.1
3	123	42.8	0	0	6	2.1
<b>Total</b>	<b>246</b>	<b>85.7</b>	<b>4</b>	<b>1.4</b>	<b>37</b>	<b>12.9</b>

**Table 2B.** Values for the subscales.

Items	Mean	SD	Median	Critical limit <sup>a</sup>
<b>I. Overloading</b>				
Time pressure	3.4	1.1	4 <sup>b</sup>	3.0
Great responsibility	3.4	1.2	4 <sup>b</sup>	3.0
Problems and conflicts	3.2	1.3	4 <sup>b</sup>	2.5
<b>II. Monotony</b>				
Low satisfaction	2.4	1.2	2	2.5
Dull work	1.6	0.7	1	2.5
Monotony	1.6	0.7	1	2.5
<b>III. Unspecific factor</b>				
Nervousness	2.8	1.3	2	3.0
Oversaturation	2.8	1.4	2	3.0
Fatigue	3.5	1.2	4 <sup>b</sup>	3.0
Long-lasting load	3.6	1.1	4 <sup>b</sup>	2.5
<b>Overall</b>	2nd degree - overloading			

<sup>a</sup> According to Židková (7); <sup>b</sup> denotes exceeded critical limit

Explanatory notes: SD - standard deviation;

Table 3 shows results from the Meister questionnaire analysis considering age, years of experience and education. Median values exceeded their critical limit for subscales, thus, the most problematic subscale turned out to be overloading. Statistical analysis revealed significant differences between age groups, years of experience

and education level in terms of analysed subscales. Kindergarten teachers (from groups: aged 45 and older; with 20 or more gained years of experience; with university degree) scored significantly higher in factors: overloading, unspecific factor, and also gross score.

**Table 3.** Descriptive statistics for the subscales of Meister questionnaire (N=287).

Women	I. Overloading			II. Monotony			III. Unspecific load			Gross score		
	mean	SD	C	mean	SD	C	mean	SD	C	mean	SD	C
<b>Norm<sup>c</sup></b>	8.4	3.2	10	7.6	3.0	9	11.7	4.4	14	25.0	8.1	29
total	10.0 <sup>a</sup>	2.7	11 <sup>b</sup>	5.6 <sup>a</sup>	2.0	7	12.7 <sup>a</sup>	3.8	14	28.4 <sup>a</sup>	7.1	32 <sup>b</sup>
<b>Age</b>												
<35 years	9.4 <sup>a</sup>	2.7	11 <sup>b</sup>	5.4 <sup>a</sup>	1.9	6	12.7	3.4	14	27.5 <sup>a</sup>	6.8	31 <sup>b</sup>
35 - 45 years	10.2 <sup>a</sup>	2.3	11 <sup>b</sup>	5.3 <sup>a</sup>	1.8	6	12.2	3.5	14	27.7 <sup>a</sup>	5.7	31 <sup>b</sup>
>45 years	10.3 <sup>a</sup>	2.9	12 <sup>b</sup>	5.8 <sup>a</sup>	2.1	7	13.1 <sup>a</sup>	4.2	15 <sup>b</sup>	29.1 <sup>a</sup>	7.7	33 <sup>b</sup>
<b>Years of experience</b>												
<20 years	9.9 <sup>a</sup>	2.5	11 <sup>b</sup>	5.4 <sup>a</sup>	1.8	6	12.6 <sup>a</sup>	3.5	14	27.8 <sup>a</sup>	6.3	31 <sup>b</sup>
>20 years	10.2 <sup>a</sup>	2.9	12 <sup>b</sup>	5.8 <sup>a</sup>	2.1	7	12.9 <sup>a</sup>	4.1	15 <sup>b</sup>	28.9 <sup>a</sup>	7.7	33 <sup>b</sup>
<b>Education level</b>												
middle	9.8 <sup>a</sup>	2.9	11 <sup>b</sup>	5.9 <sup>a</sup>	2.1	6	12.6 <sup>a</sup>	4.1	13	28.3 <sup>a</sup>	7.6	28
higher	10.2 <sup>a</sup>	2.6	12 <sup>b</sup>	5.3 <sup>a</sup>	1.8	6	12.8 <sup>a</sup>	3.6	15 <sup>b</sup>	28.4 <sup>a</sup>	6.6	32 <sup>b</sup>

<sup>a</sup> p<0.05 (t-test); <sup>b</sup> exceeded critical value; <sup>c</sup> According to Židková (7);

Abbreviations: SD - standard deviation; C - critical limit

Descriptive statistics of psychosocial risk questionnaire items are shown in Table 4. Slovak kindergarten teachers generally considered their work as interesting (94.8%). They reported usage of their qualification and abilities (98.3%), autonomy in decision-making (84.0%), enough time for family (61.3%) and good relations with colleagues (81.9%). They felt the most frustrated about job performance evaluation (74.6%). They mostly reported good social support from employers (64.1%), safety hazards management in the workplace (58.5%) and awareness of protected health in the workplace (52.6%). Workplace mobbing and violence were noticed in 20.6% of kindergarten teachers.

We distributed the sample in two groups to assess how kindergarten teachers consider their work (as “mentally demanding” or “not mentally demanding”). A total of 48 respondents from the group “not mentally demanding (n=95)” had less than 20 years of experience. From the group “mentally demanding (n=192)” a total of 94 kindergarten teachers had less than 20 years of experience. Significant differences between groups were not observed ( $p=0.8057$ ).

Significant statistical differences were noticed in half of the items (Table 4). Kindergarten teachers who considered their work as not mentally demanding more often reported autonomy in their job ( $p=0.0016$ ). Also, they more often reported fair evaluation of working performance ( $p=0.0109$ ), enough time for family ( $p=0.0057$ ), protected health in the workplace ( $p=0.0002$ ) and absence of violence and bullying ( $p=0.0427$ ).

**Table 4.** Psychosocial risks questionnaire evaluation and comparison between groups (N=287).

Item	All teachers N= 287		Not mentally demanding N=95 (33.1%)		Mentally demanding N=192 (66.9%)		p value
	N (%)						
	yes	no	yes	no	yes	no	
Do you use your skills and abilities at work?	282 (98.3)	5 (1.7)	95 (100.0)	0	187 (97.4)	5 (2.6)	0.1126
Do you decide on your own how to do your job?	241 (84.0)	46 (16.0)	89 (93.7)	6 (6.3)	152 (79.2)	40 (20.8)	0.0016 <sup>a</sup>
Do you consider your job as interesting, which inspires you to continuing education?	272 (94.8)	15 (5.2)	92 (96.8)	3 (3.2)	180 (93.8)	12 (6.2)	0.2680
Is your job performance fairly evaluated?	73 (25.4)	214 (74.6)	33 (34.7)	62 (65.3)	40 (20.8)	152 (79.2)	0.0109 <sup>a</sup>
Do you have enough time for your family due to your work?	176 (61.3)	111 (38.7)	69 (72.6)	26 (27.4)	107 (55.7)	85 (44.3)	0.0057 <sup>a</sup>
Do you have good relationships and social support with your co-workers?	235 (81.9)	52 (18.1)	82 (86.3)	13 (13.7)	153 (79.7)	39 (20.3)	0.1701
Can you rely on social support from your employer?	184 (64.1)	103 (35.9)	68 (71.6)	27 (28.4)	116 (60.4)	76 (39.6)	0.0636
Does your employer manage all safety hazards in the workplace?	168 (58.5)	119 (41.5)	62 (65.3)	33 (34.7)	106 (55.2)	86 (44.8)	0.1037
Do you think your health is managed well enough and protected in the workplace?	151 (52.6)	136 (47.4)	65 (68.4)	30 (31.6)	86 (44.8)	106 (55.2)	0.0002 <sup>a</sup>
Does violence or bullying occur in your workplace?	59 (20.6)	228 (79.4)	13 (13.7)	82 (86.3)	46 (24.0)	146 (76.0)	0.0427 <sup>a</sup>

<sup>a</sup>  $p<0.05$  (chi-square test)

We aimed to examine whether there is some relationship between the perception of psychosocial load and age, educational level, and years of experience in kindergarten teachers who perceived work as “mentally demanding”. We performed a statistical analysis of variables by using chi-square test. The results of 3 items showed significant statistical differences (Table 5).

Kindergarten teachers with higher education stated more often that their job is not fairly evaluated ( $p=0.0345$ ). Moreover, kindergarten teachers aged 45 and older and with more than 20 years of experience more often reported unfairness in job performance evaluation ( $p=0.0008$ ; resp.  $p=0.0021$ ). Older age, higher education and more years of experience turned out to be more associated with a negative perception, according to job performance evaluation.

However, older age and higher education of kindergarten teachers turned out to be associated with a perception of good social support from employers. Kindergarten teachers with higher education levels, aged >45 years, with less than 20 years of experience, showed statistically more social support from their employer ( $p=0.0389$ ; resp.  $p=0.0077$ ; resp.  $p=0.0092$ ).

**Table 5.** Psychosocial risks questionnaire and comparison of demographic characteristics - kindergarten teachers' perception of work as “mentally demanding” (N=192).

Item	Do you consider your job as an interesting, which inspires you to continuing education?		p value	Is your job performance fairly evaluated?		p value	Can you rely on social support from your employer?		p value
				N (%)					
	yes	no	yes	no	yes	no			
<b>Level of education</b>									
middle	85 (44.3)	1 (0.5)	0.2587	12 (6.3)	74 (38.5)	0.0345 <sup>a</sup>	45 (23.4)	41 (21.4)	0.0389 <sup>a</sup>
higher	102 (53.1)	4 (2.1)		28 (14.6)	78 (40.6)		71 (37.0)	35 (18.2)	
<b>Age</b>									
<35 years	43 (22.4)	3 (1.6)	0.2528	12 (6.3)	34 (17.7)	0.0008 <sup>a</sup>	35 (18.2)	11 (5.7)	0.0077 <sup>a</sup>
35 - 45 years	50 (26.0)	0		18 (9.4)	32 (16.7)		33 (17.2)	17 (8.9)	
>45 years	94 (49.0)	2 (1.0)		10 (5.2)	86 (44.8)		48 (25.0)	48 (25.0)	
<b>Years of experience</b>									
<20	90 (46.9)	3 (1.6)	0.6001	28 (14.6)	65 (33.9)	0.0021 <sup>a</sup>	65 (33.9)	28 (14.6)	0.0092 <sup>a</sup>
>20	97 (50.5)	2 (1.0)		12 (6.3)	87 (45.3)		51 (26.6)	48 (25.0)	

<sup>a</sup>  $p<0.05$  (chi-square test)

#### 4 DISCUSSION

The job of kindergarten teachers is affected by various factors and aspects of work. Kindergarten teachers are regularly exposed to emotional distress, resulting in emotion dysregulation and burnout (3, 18). The former research proved the higher risk of emotional dysregulation, exhaustion and anxiety among kindergarten teachers (19-22). We assumed that long-term exposure to occupational stress can also contribute to aggravated perception of workload. Recent articles have focused on teachers' burnout prevention and management of occupational stress in Slovakia. Author Piačková has shown that prevalence of burnout in kindergarten is significantly lower compared to other types of schools (23). However, a total of 28.7% teachers (n=104) were found to be at higher risk of burnout. Findings from a Croatian study have showed a potential risk of emotional exhaustion and burnout in 50% of teachers (n=100) (19). A similar pattern of results was obtained in Romania - almost half of kindergarten teachers from a sample (n=150) had a tendency to change profession due to emotional distress (24).

Our results showed exceeded critical values in time pressure, great responsibility problems and conflicts, fatigue and long-lasting load (Table 2B). These items turned out to be the most problematic and a potential source of frustration as well. Our findings were consistent with the results of an Italian study (25). Italian kindergarten teachers reported significantly higher values in questionnaires than VDU (Visual Display Unit) operators. Higher values were associated with work responsibilities, independence and autonomy in performing work-duties and other negative features of work interfering with psychophysical well-being (25). Our results also show comparable data to several Asian cross-sectional analyses (26, 27).

Psychosocial risks linked to the workplace are a significant source of occupational stress, like with other factors (e.g. mental, emotional and sensory load) (14). In addition, psychosocial risks include variables such as aspects of own work, social interaction and balancing work and family (14). According to the World Health Organization, psychosocial occupational stress can be divided into ten areas defining working conditions (character of work, pace, schedule, evaluation and control, working environment, level of communication, social interaction, role in company, professional investment, balancing work and family) (28). Teachers with fatigue are more likely to respond negatively to aspects of their own work, social interaction and balance between work and family (8). Respectively, our findings showed similar patterns. Kindergarten teachers who did not consider their work as mentally demanding are statistically more likely to respond to aspects of work positively and vice versa

(Table 4). Kindergarten teachers considering their work as mentally demanding more frequently reported lack of time for family ( $p=0.0057$ ). They also more often reported unfair evaluation of working performance ( $p=0.0109$ ). A German study of preschool teachers confirmed significant differences between the type of the centre and perception of job satisfaction. They explained that type of centre (public, private, run by churches) could be a potential factor explaining variations in educators' job satisfaction (29). Results from researchers in the USA showed correlation between teachers' satisfaction with working appraisal and improvements to pupil performance in school (30). Existence of appraisal or financial rewards at work encourages mental well-being, satisfaction with work and overall health as well (24). In contrast, unfairness in evaluation generates and intensifies emotional exhaustion (31).

We also found that mobbing or violence was reported by a total 20.5% of kindergarten teachers. Results from a European Working Conditions Survey showed that a total 48.7% of European teachers have experienced some form of mobbing and bullying. The survey was conducted among 261 European teachers using the Job-Demand-Resources instrument (JD-R model) (32).

In addition, teachers at several kindergartens did not recognize occupational stress at all. Moreover, they very often lack skills on how to cope effectively (adaptive or maladaptive coping) with stress. Consequently, maladaptive ways of coping (e.g. avoidance, escape, emotion-focused coping) are linked to psychological distress and viewing problems as recurrent. In contrast, adaptive coping (problem-focused coping, support seeking) may buffer the occupational stress (33).

Occupational stress is recognized as a key variable related to many socio-economic outcomes, e.g. sick leave, absenteeism or teacher attrition (teachers who voluntarily exit the profession) (34). Recent studies of teacher stress described a relation between negative affective response and perceptions of the balance between classroom demands and resources. Teachers perceiving sufficient resources to meet their demands were more likely to pursue becoming a teacher again (86.5%) or intending to remain in teaching (87.6%) (34).

As well as the possibilities to change working practice, stress management is also well described in literature. Courses for individuals, trainee programs for teachers (e.g. teaching soft skills) or rehearsing adaptive coping strategies can be very helpful (e.g. hobbies). The development of professional investment and management of competencies in teachers are significant aspects of social motivation (7, 20).

#### 4.1 Limitations

We found a certain limitation to our study, e.g. small sample size; also, we did not focus on psychological factors associated with teachers' everyday experience, school system or policy climate issues. We also did not consider significant differences between groups according to ownership of kindergarten (public, run by churches, private).

#### 5 CONCLUSIONS

Public health's focus is on exploring workplaces suffering from occupational stress and risks to health and safety. The research shows that teachers in kindergarten are exposed to various levels of occupational stress. Kindergarten teachers reported overloading, time stress, and high responsibility. Nevertheless, they considered their job as interesting, which motivates them to seek out professional development. Employer's strategy and policy has a crucial preventing role for employees suffering from occupational stress (35). We conclude that risk evaluation, control measures, and institutional changes should be realized at each school organisation. Some authors found low-quality evidence between organizational interventions and improvements in teacher well-being (36). However, changing the way that teachers work is organized at schools may reduce teacher resignations and may improve the teachers' quality of well-being.

#### CONFLICTS OF INTEREST

The authors declare no conflicts of interest exist

#### FUNDING

There is no financial interest at risk.

#### ETHICAL APPROVAL

The kindergartens included in the research were randomly selected and sent the questionnaire. The questionnaire was anonymous and kindergarten staff could choose whether or not to participate in the research. The research carried no risk of violating ethical principles.

#### AUTHORS' CONTRIBUTION

All authors were involved in the development of the project, study design, data collection, and its interpretation. All authors contributed to the preparation of the manuscript and approved the final version of the text.

#### REFERENCES

- Skaalvik EM, Skaalvik S. Job demands and job resources as predictors of teacher motivation and well-being. *Soc Psychol Educ*. 2018;21:1251-75. doi: 10.1007/s11218-018-9464-8.
- Baranovská A. Vyčerpanie a syndróm vyhorenia u učiteľov materskej školy. Bratislava: Metodicko-pedagogické centrum, 2014. Accessed 2014 at: [https://mpc-edu.sk/sites/default/files/projekty/vystup/baranovska\\_4\\_0.pdf](https://mpc-edu.sk/sites/default/files/projekty/vystup/baranovska_4_0.pdf).
- Rentzou K. Prevalence of burnout syndrome of Greek child care workers and kindergarten teachers. *Education*. 2015;43:249-62. doi: 10.1080/03004279.2013.804853.
- Sandilos LE, Goble P, Rimm-Kaufman SE, Pianta RC. Does professional development reduce the influence of teacher stress on teacher-child interactions in pre-kindergarten classrooms? *Early Child Res Q*. 2018;42:280-90. doi: 10.1016/j.ecresq.2017.10.009.
- Novak T, Sedlar N, Šprah L. Perceived workplace stress and co-occurrence of health problems and burnout in different occupational groups. *Zdr Varst*. 2013;52:292-303. doi: 10.2478/sjph-2013-0030.
- Järvelin-Pasanen S, Sinikallio S, Tarvainen MP. Heart rate variability and occupational stress - systematic review. *Ind Health*. 2018;56:500-11. doi: 10.2486/indhealth.2017-0190.
- Židková Z, Martinková J. Psychická zátěž učitelů základních škol. *Prac Lek*. 2003;4:122-26. Accessed 2003 at: [http://www.tigis.cz/images/stories/CESKE\\_PRACOVNI\\_LEKARSTVI/2003/03/04\\_zidkova\\_cpl\\_3-03.pdf](http://www.tigis.cz/images/stories/CESKE_PRACOVNI_LEKARSTVI/2003/03/04_zidkova_cpl_3-03.pdf).
- Skaalvik EM, Skaalvik S. Teacher stress and teacher self-efficacy as predictors of engagement, emotional exhaustion, and motivation to leave the teaching profession. *J Creat Behav*. 2016;7:1785-99. doi: 10.4236/ce.2016.713182.
- Ministry of Education, Science, Research and Sport of the Slovak Republic. Národný program rozvoja výchovy a vzdelávania 2018-2027. Accessed December 10th, 2018 at: <https://www.minedu.sk/data/att/13288.pdf>.
- Slovak Centre of Scientific and Technical Information. Accessed January 3rd, 2017 at: [http://www.cvtisr.sk/cvti-sr-vedecka-kniznica/informacie-o-skolstve/statistiky/statisticka-rocenka-publikacia/statisticka-rocenka-materske-skoly.html?page\\_id=9602](http://www.cvtisr.sk/cvti-sr-vedecka-kniznica/informacie-o-skolstve/statistiky/statisticka-rocenka-publikacia/statisticka-rocenka-materske-skoly.html?page_id=9602).
- Minister of Health. Regulation of August 16, Rules of health protection against physical, mental and sensory load at work. 2007;542:3896.
- Židková Z, Martinková J, Paulová M, et al. The psychological burden of ancillary healthcare personnel. *Czech Labour Med*. 2001;2:4-8.
- Dębska G, Pasek M, Wilczek-Rużyczka E. Sense of coherence vs. mental load in nurses working at a chemotherapy ward. *Cent Eur J Public Health*. 2017;25:35-40. doi: 10.21101/cejph.a4305.
- Hladký A, Židková Z. Metódy hodnotenia psychosociálnej pracovnej zátáže. Praha: Karolinum, 1999.
- National Institute of Public Health. Kampaň SLIC - psychosociální rizika na pracovišti. Accessed December 10th, 2014 at: <http://www.szu.cz/tema/pracovni-prostredi/kampan-slic-psychosocialni-rizika-na-pracovisti>.
- The Committee of Senior Labour Inspectors (SLIC). Psychosocial risk assessments: SLIC inspection campaign 2012: final report. European Union, 2012. Accessed April 2nd, 2019 at: <http://www.sevosh.org.gr/el/Images/News/SLIC-2012/SLIC1>.
- EU-OSHA. Psychosocial risks in Europe: prevalence and strategies for prevention. Luxembourg: Publications Office of the European Union. doi: 10.2806/70971.
- Hülsheger UR, Schewe AF. On the costs and benefits of emotional labour: a meta-analysis of three decades of research. *J Occup Health Psychol*. 2011;16:361-89. doi: 10.1037/a0022876.
- Hozo ER, Susic G, Zaja I. Burnout syndrome among educators in pre-school institutions. *Mater Sociomed*. 2015;27:399-403. doi: 10.5455/mtm.2015.27.399-403.

20. Jeon L, Hur E, Buettner CK. Child-care chaos and teachers' responsiveness: the indirect associations through teachers' emotion regulation and coping. *J Sch Psychol.* 2016;59:83-96. doi: 10.1016/j.jsp.2016.09.006.
21. Sjödin F, Neely G. Communication patterns and stress in the preschool: an observational study. *Child Care in Practice.* 2017;23:181-94. doi: 10.1080/13575279.2016.1259159.
22. Zinsler KM, Zulauf CA, Das VN, Silver HC. Utilizing social-emotional learning supports to address teacher stress and preschool expulsion. *J Appl Dev Psychol.* 2019;61:33-42. doi: 10.1016/j.appdev.2017.11.006.
23. Piačková M. Burnout syndrome and its occurrence by the kindergarten teachers in connection with meticulousness as personal features. Prague: Charles University, 2010. Accessed February 2nd, 2019 at: <https://is.cuni.cz/webapps/zzp/detail/93857>.
24. Clipa O, Boghean A. Stress factors and solutions for the phenomenon of burnout of preschool teachers. *Procedia Soc Behav Sci.* 2015;180:907-15. doi: 10.1016/j.sbspro.2015.02.241.
25. Sancini A, Tomei F, Schifano MP, Di Giorgio V, Caciari T, Fiaschetti M, et al. Stress characteristics in different work conditions: is it possible to identify specificity of risk factors by the questionnaire method? *Eur J Inflammation.* 2010;8:117-23. doi: 10.1177/1721727X1000800209.
26. Jiang Y, Li P, Wang J, Li H. Relationships between kindergarten teachers' empowerment, job satisfaction, and organizational climate: a Chinese model. *J Res Childhood Educ.* 2019;33:257-70. doi: 10.1080/02568543.2019.1577773.
27. Liu JT. Influence on kindergarten teacher's job satisfaction from kindergarten organization culture and work pressure. *Int J Organ Innovation.* 2016;9:80-96.
28. World Health Organization. PRIMA-EF: guidance on the European framework for psychosocial risk management: a resource for employer and worker representatives. Geneva: World Health Organization. Accessed May 10th, 2008 at: <http://www.who.int/iris/handle/10665/43966>.
29. Kusma B, Groneberg DA, Nienhaus A, Mache S. Determinants of day care teachers' job satisfaction. *Cent Eur J Public Health.* 2012;20:191-8. doi: 10.21101/cejph.a3700.
30. Currall SC, Towler AJ, Judge TA, Kohn L. Pay satisfaction and organizational outcomes. *Pers Psychol.* 2005;58:613-40. doi: 10.1111/j.1744-6570.2005.00245.x.
31. Leiter MP, Maslach C. Nurse turnover: the mediating role of burnout. *J Nurs Manag.* 2009;17:331-9. doi: 10.1111/j.1365-2834.2009.01004.x.
32. Ariza-Montes A, Muniz R NM, Leal-Rodríguez AL, Leal-Millán AG. Workplace bullying among teachers: an analysis from the job demands-resources (JD-R) model perspective. *J Occup Environ Med.* 2016;58:818-27. doi: 10.1097/JOM.0000000000000804.
33. Skinner E, Beers J. Mindfulness and teachers' coping in the classroom: a developmental model of teacher stress, coping, and everyday resilience. In: *Handbook of mindfulness in education.* New York: Springer, 2016:99-118. doi: 10.1007/978-1-4939-3506-2\_7.
34. Lambert R, Boyle L, Fitchett P, McCarthy C. Risk for occupational stress among US kindergarten teachers. *J Appl Develop Psychol.* 2019;61:13-20. doi: 10.1016/j.appdev.2018.07.003.
35. Dobnik M, Maletič M, Skela-Savič B. Work-related stress factors in nurses at Slovenian hospitals - a cross-sectional study. *Zdr Varst.* 2018;57:192-200. doi: 10.2478/sjph-2018-0024.
36. Naghieh A, Montgomery P, Bonell CP, Thompson M, Aber JL. Organisational interventions for improving wellbeing and reducing work-related stress in teachers. *Cochrane Database Syst Rev.* 2015;8:CD010306. doi: 10.1002/14651858.CD010306.pub2.