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Original papers

Communication with superiors and colleagues and other occupational stressors. Correlations with work ability, self-efficacy and health in employees from primary and secondary education

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Abstract

During periodic occupational medical checkup, in a sample including all employees from two high schools, a secondary school and a kindergarten, we administered through voluntary completion, questionnaires which assessed the employees' occupational stress in terms of individual characteristics, anxiety, sense of self-efficacy, work ability, emotional exhaustion and health status (using ShortForm 36 questionnaire). A number of 233 questionnaires were returned. Only the occupational stressor represented by communication with superiors correlates significantly negatively with work ability in all four units. Work ability and communication with superiors also have average scores which differ significantly and are concordant in all four units. In the secondary school, work ability has the highest average value and the lowest average value of "communication with superiors" stressor. The same values are decreasing for WAI in order, from high school 2 to high school 1 and kindergarten while the stressor represented by communication with superiors has increasing values in order from high school no 2 to high school no. 1, and kindergarten. These results show that programmes to reduce occupational stress in school units should primarily address the school unit leadership in order to improve their communication with employees.

Keywords: *occupational stressors, work ability, self-efficacy, employees, primary education, secondary education*

Introduction

According to the European Agency for Safety and Health at Work (EU-OSHA), the following groups of workplace stressors are considered to have an organizational effect: organization constraints and responsibilities, career, decision-making roles, communications and interpersonal relationships at workplace, job design, work tasks, work schedule [1]. The organisational and individual sources of stress are very numerous and can be interdependent. Frequently, the characteristics of the workplace play an important role in the development of reactions to stress that entail fear and anxiety [3, 4]. Perceived Self Efficacy is considered to be a protective factor against stress and indicates the capacity needed, perceived,

by an individual so as to reach a certain purpose [2]. Workers with a high level of emotional involvement in work, motivated and ambitious are frequently affected by emotional exhaustion, depersonalisation, decreased professional outcomes or, in other words, burnout.

Objectives

The assessment of correlations of occupational stress factors with work ability, health, self efficacy, anxiety in employees from four school units of primary and secondary education.

Material and method

During periodic medical check-ups occupational stressors, work ability, health status, perceived self-efficacy, anxiety and burnout were evaluated through questionnaires in four school units: kindergarten (with urban location), secondary school (rural location) and two highschools (urban location). There were 34 respondents in kindergarten, from a total of 38 employees. In the first highschool, out of 92 employees, 72 questionnaires were completed while in the second highschool out of 131 employees, 101 questionnaires were completed. In the secondary school, there were 32 respondents form 33 employees, but only 26 completed valid questionnarires.

The employed questionnaire consisted of 5 sections:

A. The first section included data on individual characteristics: sex, type of residence, income level per family member, current position, age, length of work in the unit and in education, and level of education. In terms of income level per family member, responses were recorded on a scale of increasing frequency: under 1400 (lei) -(1), between 1400 and 2100 (lei)-(2), above 2100 (lei)-(3).

B. The second section states ten occupational stressors as following: unable to change unpleasant aspects, communication with superiors (support from superiors) and communication with other employees, increased responsibility, risks of disease and risks of injury, wage level, workloads and work schedule, daily completion of documents. Responses was recorded on a scale of increasing frequency: never (0), rarely (1) often (2), very often (3).

C. The perceived self-efficacy was measured using "General Self-Efficacy scale", adapted for Romania [5].

D. The emotional exhaustion was rated by the Maslach Bunout Inventory [6].

E. The levels of anxiety-state level and anxiety-trait were assessed by Spielberger Anxiety Inventory - State / Trait Anxiety Inventory (STAI) [7].

F. Work Ability was measured using the Work Ability Index (noted WAI) developed by the Finnish Institute of Occupational Health [8]. WAI consists of a sum of seven variables: current work ability compared with the lifetime best work ability in relation to the demands of the job, mental resources, number of current diseases diagnosed by a physician, estimated work impairment due to diseases, sick leave during the past 12 months, employer's prognosis of work ability for two years [9].

G. SF-36 questionnaire is used in evaluating the health status and consists of eight dimensions as the following: physical functioning, physical role functioning, emotional role functioning, social role functioning, vitality, mental health, body pain and general health perceptions [10,11].

The gender representation of the studied groups is shown in Table 1.

For data analysis (software) we used Epi Info v. 3.5.3, SPSS v 16.0. Statistical tests used: Kruskal- Wallis test, Mann-Whitney test (U test), ANOVA, Kruskal-Wallis test and Spearman correlation coefficient for correlations between questionnaire variables (ρ). For ρ, the notation: ** - means that the correlation is significant at the 0.01 level (2-tailed), * - means that the correlation is significant at the 0.05 level (2-tailed). p value was significant at 0.05.

Results and Discussions

The distributions of the studied groups by type of residence and school unit are shown in Table 1. In kindergarten and in highschools the type of residence is predominantly urban (between 1/10 and 1/3 proportion of rural residence). In secondary school, almost all employees have a rural type of residence. The distributions of the studied groups by gender and school unit are shown in Table 2. In kindergarten all employees are females while in both highschools the men/women sex ratio is aproximately of "one on four" (¼). In secondary school, men/women sex ratio in "one on five"(1/5).

Average score age of male employees is 47.17 years (with values between 39 and 63 years) in high school no. 1 (first highschool), 50.1 years in highschool no. 2 (with values between 23 and 65 years) and 41.33 years (with a range of values between 38 and 43 years) in the secondary school, these values being not significantly different between the three units (ANOVA, p=0.348). In the kindergarten there were

Table 1. Distribution of the studied groups by type of residence and school unit

	Type of residence	Frequency	Percentage, %	95% Confidence Limits, %	
kindergarten	rural	7	20.6	8.7	37.9
	urban	27	79.4	62.1	91.3
	Total	34	100		
secondary school	rural	24	96	79.6	99.9
	urban	1	4	0.1	20.4
	Total	25	100		
high school no. 1	rural	5	7.1	2.4	15.9
	urban	65	92.9	84.1	97.6
	Total	70	100		
high school no. 2	rural	33	33.7	24.4	43.9
	urban	65	66.3	56.1	75.6
	Total	98	100		

Table 2. Distributions of the studied groups according to gender and school unit

School unit	Sex	Frequency	Percentage, %	95% Confidence Limits, %	
kindergarten	Male	0	0	0	10.3
	Female	34	100	100	100
	Total	34	100		
secondary school	Male	3	12	2.5	31.2
	Female	22	88	68.8	97.5
	Total	25	100		
high school no. 1	Male	12	16.7	8.9	27.3
	Female	60	83.3	72.7	91.1
	Total	72	100		
high school no. 2	Male	20	20.2	12.8	29.5
	Female	79	79.8	70.5	87.2
	Total	99	100		

no male employees. In kindergarten, the average age of female employees is 41.03 years (with values between 19 and 58 years), 44.37 years (between 25 and 61 years of age) in the first high school, 44.38 years (between 22 and 60 years of age) in the second high school and at secondary school the average age is 42.68 years (with values between 25 and 57 years). These values are not significantly different between school units (ANOVA, p=0.362). The average work period in the unit as a male employee is 10.42 years for the first high school employees (between 2 and 20 years), 17.25 years ((between 1 and 42 years) and 9.33 years for the seondary school (with values between 8 and 12 years), with no statistically significant differences (ANOVA, p=0.19).

The work period in the unit does not differ significantly between school units for female employees, either (ANOVA, p=0.55). The average work period for women staff in the kindergarten is 10.29 years (with values between 2 months and 31 years), 11.38 years in the first high school (with a range between 2 months and 27 years), 14.37 years at the second high school (with a range between 1 year and 38 years) and 12.7 years in the secondary school (with values between 2 months and 30 years). Regardless of gender, for the entire occupational population of the school units, the average values of the length as a unit employee are between 11.22 years (average value for high school no.1) and 14.99 years (for high school no.2) as shown in Figure 1.

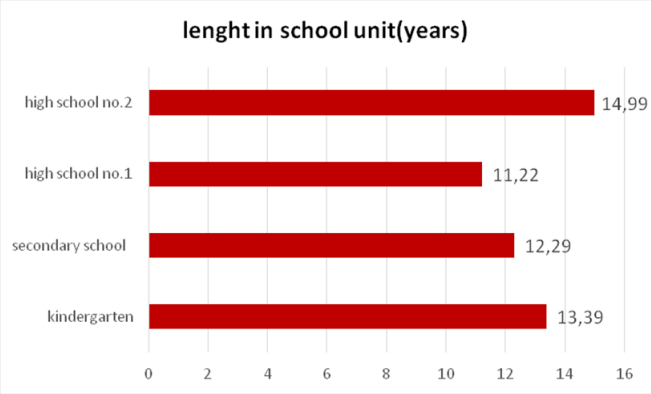

Figure 1. The mean value of work period in school unit

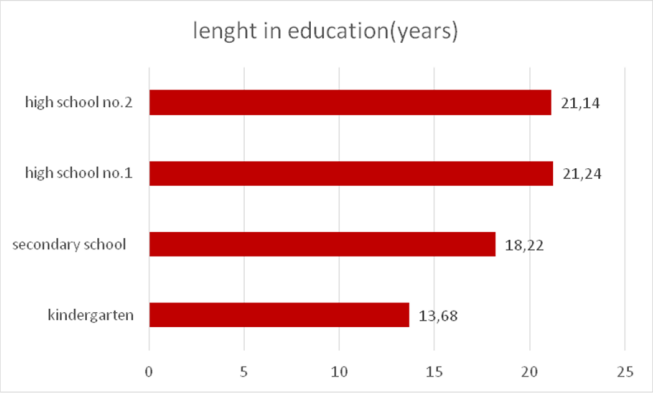

Figure 2. The mean value of work in education according to school unit

The average work period in education as a male employee is 17.5 years for the first high school employees (between 3 and 36 years), 19.94 years (between 3 and 42 years) and 11.67 years for the secondary school (with values between 3 and 15 years), with no statistically significant differences (ANOVA, p=0.68). The work period in education differs significantly between school units for female employees, (ANOVA, p=0.019) having higher values in highschool no 2. for the female employees. The average work period for women staff in the kindergarten is 13.68 years (with values between 2 months and 37 years), 20.02 years in the first high school (with a range between 1 year and 42 years), 21.43 years (with a range between 1 year and 40 years) and 19.2 years in the secondary school (with values between 3 years and 36 years) (Figure 2).

There are significant differences among school units (p=0.0017) according to income level per family member, being higher in highschool no.1 and no.2 employees and lower in kinergarten employees (Figure 3).

The level of studies is significantly higher (p= 0.0015) in both high schools and lower in kindergarten and secondary school (Figure 4).

The levels of occupational stressors according to school unit are shown in Figure 5. As to the stress factor "unable to change unpleasant aspects" in employees, the average scores are: 1.83 in kindergarten; 1.93 in high school no.1, 1.67 in high school no.2 and 1.48 in secondary school, respectively (ANOVA, p = 0.0007).

In terms of the stress represented by "communication with superiors", the average scores are: in kindergarten 1.97; 1.86 in high school no.1; 1.72 in high school no.2 and 1.28 in secondary school (ANOVA, p = 0.0001). The differences between units in male employees are conclusive (ANOVA, p=0.0035).

The stress factor "communication with other employees" has the following values: in kindergarten the average score is 1.83, in high school no. 1 the average score is 1.8; in high school no. 2 the average score is 1.53 and in secondary school, the average score is 1.2 (ANOVA, p = 0.0013). The differences are statistically clear in the employees of the four units

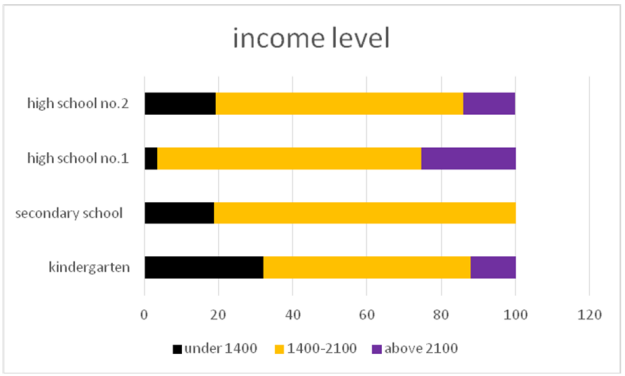

Figure 3. Distribution of average income level per family according to school unit

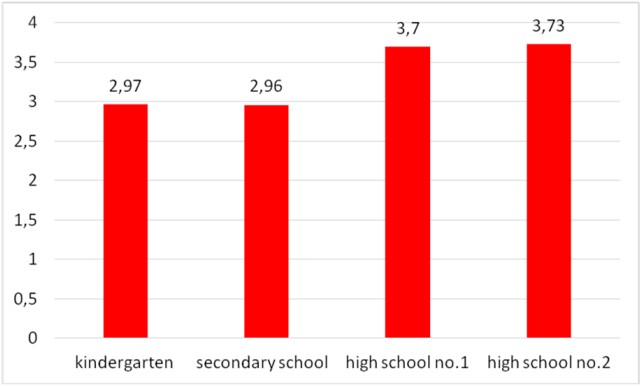

Figure 4. Level of studies according to school unit

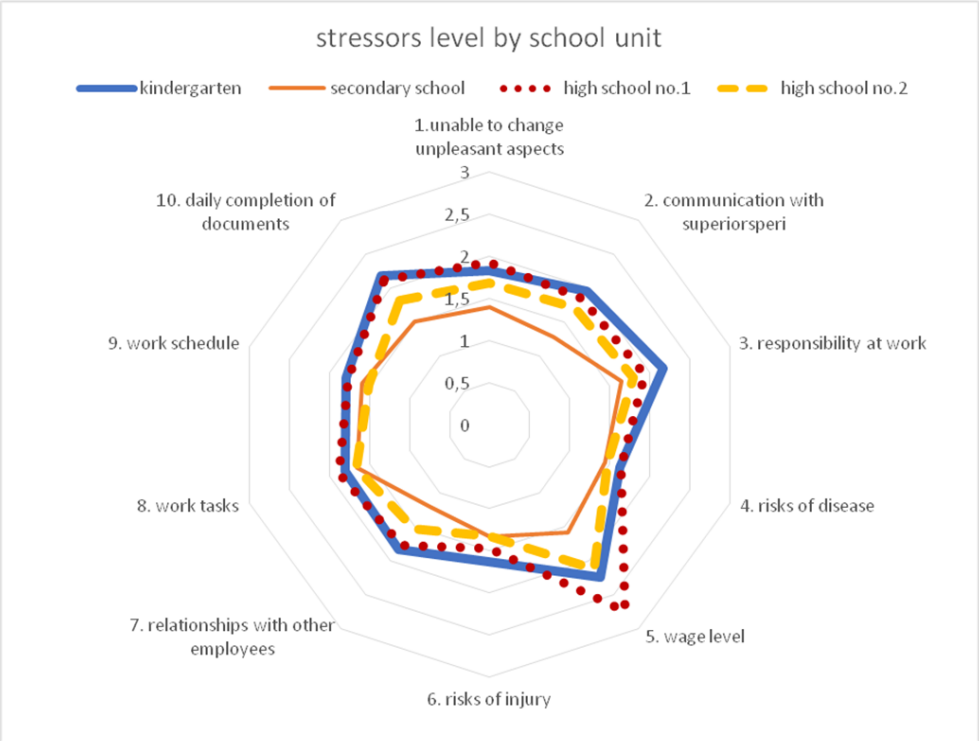

Figure 5. Mean values of stress sources in the workplace

(ANOVA, p= 0.0011).

In the stress factor "wage level" there are important differences among the employees (ANOVA, p=0.0051) in the 4 units as folows: in kindergarten the average score is 2.24, in high school no.1 the average score is 2.74; in high school no.2 the average score is 2.12 and at secondary school level, the average score is 1.58.

In the employees' stress factor "daily completion of documents", the average scores are: 2.19 in kindergarten, 2.13 in high school no.1; 1.82 in high school no.2 and 1.5 in secondary school, respectively (ANOVA, p = 0.0008).

There are no conclusive differences between school units in the folowing average scores for occupational stressors: risks of disease, risks of injury, increased responsibility, workloads and work schedule, which present no differences according to units.

WAI differs significantly according to school units (p=0.0038) with the highest value in secondary school and the lowest in kindergarten (Figure 6).

The "perceived self-efficacy" has the lowest value in kindergarten and the highest in high school no.2 but average values between school units do not differ significantly (p= 0.3671) (Figure 7). Burnout has the lowest value in secondary school and the highest in kindergarten and in highschool no.1 but these values

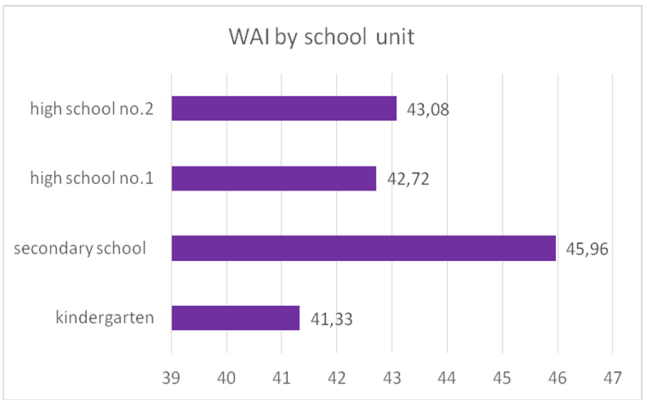

Figure 6. WAI average score in school units

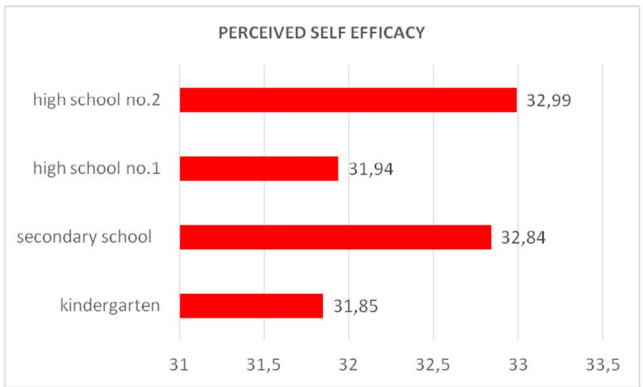

Figure 7. Self-efficacy average score in school units

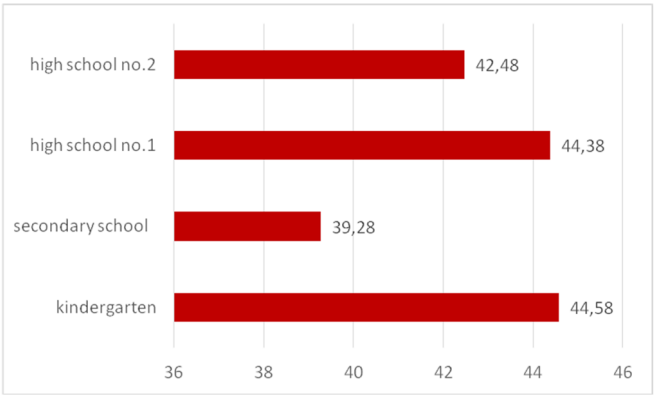

Figure 8. Burnout according to school unit

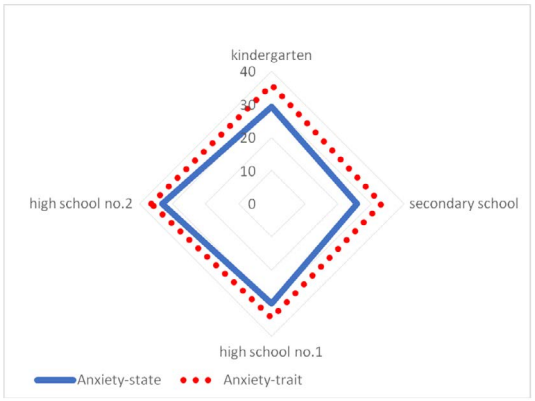

Figure 9. Anxiety according to school unit

do not differ significantly (p= 0.0930) (Figure 8).

The state anxiety (average value) has the lowest value in secondary school (25.68) and the highest in second high school (33.16), the average values differ significantly according to school unit (p<0.001). Likewise, average values of anxiety traits differ significantly according to school unit (p=0.0489 having the lowest value in secondary school (average of 39) and the highest in second high school (average value is 41.5) (Figure 9).

In particular cases of significant differences between school units regarding average level of occupational stressors, we found significant correlations of these stressors with variables represented by WAI, anxiety-state, anxiety-trait, burnout, self-efficacy, such as:

in kindergarten:

-"unable to change unpleasant aspects" has no significant correlations with the above-mentioned variables;

-"communication with superiors" correlates negatively with WAI (ρ=-0.408*, p=0.031);

-"communication with other employees" correlates positively with burnout (ρ=0.574**, p=0.001) and anxiety-state (ρ=0.468**, p=0.008), anxiety-trait (ρ=0.427*, p=0.017) and negatively with WAI (ρ=-0.464**, p=0.01);

-"wage level" correlates positively with (ρ=0.395*, p=00.028) and negatively with anxiety-state (ρ=-0.387*, p=0.029) and WAI (ρ=-0.396*, p=0.025);

-"daily completion of documents correlates positively with "physical functioning (ρ=0.413*, p=0.032) and with anxiety-state (ρ=0.430*, p=0.025).

in secondary school:

-"unable to change unpleasant aspects" correlates positively with burnout (ρ=0.255*, p=0.032) and negatively with "mental health" (ρ=-0.297*, p=0.015);

-"communication with superiors" correlates positively with burnout (ρ=0.346**, p=0.003), anxiety-state (ρ=0.464**, p=), anxiety-trait (ρ=0.393**, p=0.001) and negatively with WAI (ρ=0.269*, p=0.023), "emotional role functioning" (ρ=-0.360**, p=0.003), "mental health" (ρ=-0.288*, p=0.019), "social role functioning" (ρ=0.258*, p=0.037);

-"communication with other employees" correlates positively with burnout (ρ=0.294*, p=0.013), anxiety-state (ρ=0.315**, p=0.009), anxiety-trait (ρ=0.331**, p=0.005) and negatively with perceived self-efficacy (ρ=-0.447**, p<0.001), "mental health" (ρ=-0.306*, p=0.013), "body pain" (ρ=-0.303*, p=0.014);

-"wage level" has no significant correlations with the above-mentioned variables;

-"daily completion of documents" correlates positively with burnout (ρ=0.294*, p=0.013) and negatively with perceived self-efficacy (ρ=-0.447**, p<0.001).

in the first high school:

-"unable to change unpleasant aspects" correlates positively with burnout (ρ=0.255*, p=0.032) and negatively with "mental health" (ρ=-0.297*, p=0.015);

-"communication with superiors" correlates positively with burnout (ρ=0.346**, p=0.003), anxiety-state (ρ=0.464**, p=0), anxiety-trait (ρ=0.393**, p=0.001) and negatively with "emotional role functioning" (ρ=-0.360**, p=0.003), "mental health" (ρ=-0.288*, p=0.019), "social role functioning" (ρ=-0.258*, p=0.037) and WAI (ρ=-0.269*, p=0.023);

-"communication with other employees" correlates positively with burnout (ρ=0.279*, p=0.019), anxiety-state (ρ=0.315**, p=0.009), anxiety-trait (ρ=0.331**, p=0.005) and negatively with perceived self-efficacy (ρ=-0.442**, p=0.001), "mental health" (ρ=-0.306*, p=0.013), "body pain" (ρ=-0.303*, p=0.014);

-"wage level" has no significant correlations with the above-mentioned variables;

-"daily completion of documents" correlates positively with burnout (ρ=0.294*, p=0.013) and negatively with perceived self-efficacy (ρ=-0.447**, p <0.001).

in the second high school:

-"unable to change unpleasant aspects" has no significant correlations with the above-mentioned variables;

-"communication with superiors" correlates negatively with WAI (ρ=-0.455**, p=.000), "physical functioning" (ρ=-0.294**, p=.004), "physical role functioning" (ρ=-0.293**, p=0.004), "vitality" (-ρ=0.215*, p=0.035), "mental health" (-ρ=0.333**, p=0.001), "social role functioning" (-ρ=0.240*, p=0.019), "body pain" (-ρ=0.316**, p=0.002);

-"communication with other employees" correlates negatively with WAI (ρ=-0.310**, p=0.003), "physical functioning" (ρ=-0.248*, p=0.015), "physical role functioning" (ρ=-0.217*, p=0.034);

-"mental health" (ρ=-0.323**, p=0.001), "body pain" (ρ=-0.231*, p=0.026), "general health perceptions" (ρ=-0.202*, p=0.048);

-"wage level" correlates negatively with "WAI (ρ=-0.245*, p=0.023), "physical functioning"(ρ=-0.246*, p=0.018), "mental health" (ρ=-0.210*, p=0.044), "body pain"(ρ=-0.244*, p=0.021);

-"daily completion of documents" correlates negatively with perceived self- efficacy (ρ=-0.286**, p=0.005), WAI (ρ=-0.310**, p=0.003), "physical role functioning" (ρ=-0.247*, p=0.015), "vitality" (ρ=-0.321**, p=0.001), "mental health" (ρ=-0.308**, p=0.002), "social role functioning" (ρ=-0.296**, p=0.003), "body pain"(ρ=-0.273**, p=0.008), "general health perceptions" (ρ=-0.317**, p=0.002).

Conclusion

The population samples represented by the employees of the studied units have different characteristics regarding the studied variables: sex, type of residence, income level per family member, current position, age, length of work period in the unit and in education, and level of education. There are differences between school units in terms of the correlations of occupational stressors with variables represented by anxiety, burnout, SF 36 dimensions, WAI, perceived self-efficacy. However, there are some concordant results.

In most of the surveyed school units, the occupational stress represented by communication with colleagues is associated with the level of burnout while the stress represented by the daily routine of document completion is negatively associated with the perceived self-efficacy.

Only the occupational stressor represented by communication with superiors correlates significantly negatively with work ability in all of the four units.

Work ability and communication with superiors stressors have also average scores which differ significantly and concordantly in all of the four units. In secondary school work ability has the higher average value and the lowest average value was obtained for the communication with superiors stressor. The same values are decreasing for WAI in order, from high school 2 to high school 1 and kindergarten while the stressor represented by communication with superiors has increasing values in order from high school no. 2 to high school no. 1 and kindergarten. Both WAI and communication with superiors stressors differ significantly among the four units. These concordant results lead to the conclusion that in educational occupational environments work ability seems to be interconditioned by communication with superiors. Restrictive leadership policy and uncommunicative manager role in school units represent the main factors of occupational stressor that correlate negatively with perceived work ability of school units employees. The concordant results in all four school units underline that reducing the occupational stress, mainly represented by difficult communication of the hierarchical superior with employees, increases primarily the employees' work capacity. These results demonstrate that programmes to reduce the occupational stress in school units should primarily address the school unit leadership in order to improve their communication with employees.

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